

FINANCIAL TIMES

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D 8523 A

Bonn's welcome for
refugees grows
cooler, Page 26

World news

Egyptians hold 500 religious extremists

Egyptian authorities, concerned about three unsolved political murders, announced that 500 Moslem fundamentalists were being held for questioning.

Sri Lanka offensive

Sri Lanka security forces, ignoring India's objections, continued operations against Tamil guerrillas in northern Jaffna peninsula and seized control of two more towns.

UK ports chaos

British docks and airports were in chaos as 200,000 civil servants staged a two-day strike for pay increases, timed to coincide with the final days of the UK general election campaign.

Berlin Wall demo

East German police broke up a demonstration at the Berlin Wall by about 1,000 youths who had gathered to listen to a rock concert being held on the West Berlin side of the wall. More than 20 people were arrested.

Basque bomb plot

Spanish police found more than 100 kg of explosives, fuses and detonators at a motorway car park near Barcelona, thwarting an apparent pre-election bomb plot by Basque extremists.

North's log 'shredded'

Fawn Hall, former secretary to Lt Col Oliver North, of the US National Security Council, admitted she had shredded Lt Col North's telephone records shortly before a US Justice Department investigation had interviewed him.

Chemobyl scandal

Senior Ukrainian officials sent their children to rest homes in the Crimea after the Chemobyl accident while keeping in the dark about the radiation danger, according to a Ukrainian journalist.

Shipping alert

South African vessels were searching for an enemy ship large enough to sink a 425ft long and 100ft wide which broke away from an American tug in rough seas off the eastern Cape coast.

Stockholm battle

Stockholm police arrested 90 demonstrators after they threw stones and bottles and chanted anti-American slogans outside the hotel where Nancy Reagan is staying during a three day visit to Sweden.

Storm kills 8

A freak storm tore across northern Spain and south-west France, killing eight people, overturning yachts, uprooting trees and ripping roofs from houses. About 30,000 French homes were without electricity.

Indian heat wave

Six more people died in Uttar Pradesh state, India, where the temperature soared to 48 degrees C (119 degrees F) and was expected to rise further, bringing the heat-wave death toll to 23.

Diplomat to leave

Britain said an administrative hitch which prevented UK diplomat Edward Chaplin leaving Tehran on Sunday had been sorted out and he was expected to leave Iran immediately.

Red Square ravioli

An authentic Italian restaurant with Italian chefs and waiters is to open in Moscow in a joint venture between a Soviet state company and Ferrari, an Italian company which makes sparkling wine.

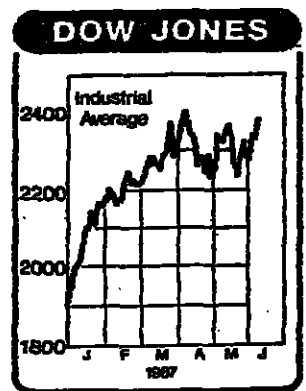
Business summary

Liffe in move to discipline members

LONDON: International Financial Futures Exchange has imposed penalties on individuals and firms in what is the most serious breach of discipline so far discovered in the exchange's five year history.

Among those investigated was the UK unit of Cargill, the US commodity trading group and Mr Keith Coplestone, a senior floor trader, who left Cargill in January after the investigation was announced.

TOKYO equities climbed to record levels in moderate trading as investors sought shares with high earnings potential. The Nikkei average rose 159.88 to close at a record 25,523.89. Page 50



WALL STREET: The Dow Jones industrial average closed up 25.49 at 2,351.65. Page 50

LONDON markets had a confident start to a potentially dramatic election week. Equities rallied from initial nervousness over the latest opinion polls, while government bonds moved ahead in late trading. The FT-SE 100 index closed just 0.4 lower at 2,228.4 while the FT Ordinary index was down 2.7 at 1,727.2. Details, Page 46

DOLLAR fell in London to DM 1.8045 (DM 1.8135: SP: 1.5005 (SP: 1.5130); FF: 8.0350 (FF: 8.0850); and Y143.40 (Y143.30). On Bank of England figures, the dollar's exchange rate index fell from 101.7 to 101.3. Page 39

STERLING rose in London to \$1.8390 (\$1.8310); SF: 2.4900 (SF: 2.4820); 1255.50 (1254.50); but was unchanged at DM 2.3575 and FF 9.8925. The pound's exchange rate index rose 0.1 to 72.7. Page 39

GOLD rose in London to \$455.75 from \$454.25. It also rose in Zurich to \$454.75 from \$452.75. Page 39

FIAT Automovels, Brazil's fourth largest car manufacturer, suspended a US\$300m investment programme because of the "extremely grave outlook" of the Brazilian economy. Page 28

FN HERSTAL, the diversified Belgian weapons and leisure goods maker, recorded a BF 631m first quarter loss, much bigger than had been expected. Page 27

ANGLOVAAL, South Africa's smallest mining house, estimates profits will rise by 38 per cent to R127.5m. Page 27

ELSEVIER, the Netherlands' second largest publishing company, is going ahead with its hostile takeover bid for Kluwer and indicated that it has been buying shares in the open market. Page 28

SEAT Concessionaires (UK), the Lomro subsidiary which imports Seat cars from Spain to the UK, lost \$4.24m (\$6.8m) in its first year of trading on turnover of £18.87m. Page 12

PERSTORP, the Swedish specialty chemicals and plastics group, increased profits in the first eight months by 39 per cent to SKr 303m (\$47.7m) Page 28

CAESARS World, the US entertainment group, has rejected Martin T. Somoff's amended \$35 per share tender offer. Page 27

UNIT Trust of India (UTI) is to launch a \$100m US investment fund, together with merchant bankers Merrill Lynch. Page 27

US relaxes chip tariffs on Japan in summit gesture

By Stewart Fleming, Philip Stephens and John Wyles in Venice

PRESIDENT Ronald Reagan yesterday offered a modest gesture towards encouraging summit harmony with Japan by partially lifting the trade sanctions imposed in retaliation for alleged Japanese unfair trading in world semiconductor markets.

The US move reduces by \$51m the \$300m of special tariffs and duties on Japanese electronic goods which were imposed in March. It was announced shortly after a bilateral meeting between Mr Reagan and Mr Yasuhiro Nakasone, the Japanese Prime Minister, before the opening session of the seven-nation world economic summit.

The Japanese leader promptly expressed appreciation for the decision and told Mr Reagan that he hoped that the sanctions would soon be fully lifted.

However, even this partial concession - based on Japanese progress in reducing the scale of dumping dynamic random access memories (DRAM) - will bring stern criticism from the US Congress for easing pressures on Japan to alter its trading practices.

Defending the decision, Mr Reagan said that the partial lifting of the sanctions would, in fact, encourage Japan to change its ways. He pointed out that the concession followed an increase in the pricing of

Thatcher to meet Reagan today

British Prime Minister Margaret Thatcher yesterday transferred her election campaign to the international stage of Venice. After briefing leaders on her meeting earlier this year with Soviet leader Mikhail Gorbachev, she will this morning meet US President Ronald Reagan, who insists publicly that the US is neutral in the UK general election but has made little secret of his desire for Mrs Thatcher's re-election. Page 3. UK election news, Page 20, 21 and 26.

DRAM from 59 per cent to 85 per cent of their market value.

The Japanese Government has given me assurances that this positive pattern with respect to third-country dumping will continue. If this does not prove to be the case, I will not hesitate to reimpose the partial sanctions that have been lifted," warned the President.

US officials added that no change had been made in the penalty duties which were imposed in support of US complaints of restricted access to the Japanese semiconductor market.

Baker clarifies White House policy on Gulf

By John Wyles in Venice

THE WHITE HOUSE yesterday split out in new detail its diplomatic aims in the Gulf, while formally denying charges that it was "sabre rattling" over the Silkworth missile Iran threatens to deploy near the Straits of Hormuz.

Mr Howard Baker, the White House Chief of Staff, also retreated from earlier comments which appeared to welcome the "joint effort" being made by the Soviet Union and the US "to preserve the flow of oil through the Persian Gulf".

Mr Baker had described these efforts as "historic" but when challenged yesterday by reporters on his comments, Mr Baker said the activities of the Soviet Union in the Gulf had been "distinctly unhelpful".

He said US moves to match Moscow's decision to protect Kuwait tankers in the Gulf had "thwarted their efforts to extend their control and influence in general".

Explaining the backing which the US hopes to secure from its partners at this summit in Venice, Mr Baker referred back to the policy "first initiated by President Carter, and that is that no nation or combination of nations is going to interfere with transit on the high seas in the Gulf, and interrupt the flow of oil from the Middle East to the rest of the world".

He said that the "major contribution" which the industrialised countries at the summit could make

would be to help the US diplomatically, and to secure a United Nations resolution "with teeth," which would call for a ceasefire to the Iran-Iraq war. Mr Baker was questioned about the reactions of Mr Yasuhiro Nakasone, the Japanese Prime Minister, and Mr Helmut Kohl, the West German chancellor, who discussed the Gulf in bilateral talks with Mr Reagan yesterday. He said they had expressed support for the US position. The President, he said, had not asked for a specific backing.

A strong statement of support from the summit would clearly help the Reagan Administration to bolster its position against the many critics and doubters of its Gulf policy on Capitol Hill.

Britain to take tougher stance on Iran

By Andrew Gowers in London

BRITAIN is to increase its monitoring of Iran's arms procurement operations in London. It may consider closing them altogether, following the row between the two countries over Mr Edward Chaplin, the British diplomat who was abducted and assaulted in Tehran 10 days ago.

Mr Chaplin was one of five British diplomats ordered to leave Iran by the Tehran Government last Saturday. He was due back in Britain last night after a last-minute administrative hitch delayed his departure on Sunday.

The Government is understood to be keen to determine whether Iran's arms buying offices are fully complying with British export licensing rules. It also plans to take a tougher line over requiring the Iranian authorities to identify and register staff at the missions.

One option is to close the missions, though officials say that is not the most likely outcome.

Britain says it does not sell weapons to Iran, but it does supply what is described as "non-lethal military equipment" for such purposes as transport.

However, Iran's London procurement offices - there are three (one for each armed service) employing a total of about 60 people - are believed to provide an important link in its worldwide arms buying network.

Diplomats say Britain has not kept as tight a rein on the Iranian operations in the past as it might have done, partly because this would have required the diversion of officials from other tasks. There are two reasons why the Government now wants to take a more critical look at their activities.

First, it wants to guard against any allegations that it supplies weapons to Tehran. This has become a particularly sensitive issue since last year's disclosure that the US was covertly selling arms to Iran.

Second, the Government does not want its stance on the recent dispute with Iran over the treatment of Mr Chaplin, the first secretary in the British interests section in Tehran, to be interpreted as a sign of weakness.

The Iranian expulsion of Mr Chaplin and the four other British diplomats came in response to Britain's decision to close Iran's consulate general in Manchester and to expel five consular officials.

Barclays aims to deal in US bond market

By David Lascelles in London

BARCLAYS de Zoete Wedd, the investment banking arm of Barclays Bank, is preparing to join the US government securities market.

BZW announced yesterday that it has formed a new US-based company, Barclays de Zoete Wedd Government Securities Inc., to be a dealer in all securities issued by the US Government and federal agencies. In due course, the company will apply to the Federal Reserve Bank of New York for recognition as a fully fledged primary dealer.

The company will have capital of \$100m, and will be managed by a four-man team led across by BZW from Kidder Peabody & Co, another primary dealer owned by General Electric.

Sir Martin Jacob, BZW chairman, said yesterday that the new company was an important step in building BZW's global securities business. "Establishing a presence in the US government securities market has for some time been a BZW objective," he said. "I'm delighted we're achieving it with such experienced management."

The management team will be headed by Mr Bernard Grigsby, previously head of government bond dealing at Kidder. The other members are Mr Samuel Marrone, chief operating officer, Mr Andrew

Kessel and Mr Robert Harding. The new company will have staff of 15 by the end of this year, rising to 50 next year.

Barclays, which is one of the largest dealers in the UK gilt-edged market, decided that the most economic way to enter the US government market was by building up its own team rather than buying an existing dealer, as some banks have done. It expects the new company to become operational in August, and hopes to qualify as a primary dealer within two to three years.

Primary dealers, of whom there are now 40, are responsible for maintaining orderly markets in US government securities and bidding for new issues. They report daily to the New York Fed, and must each have at least 0.75 per cent of the average daily market turnover.

Barclays is the last of the large UK clearing banks to unveil its plans for the US Treasury bond market. Midland Bank is already a primary dealer, and both NatWest and Lloyds hope to achieve recognition within a year or so after going through the required probationary period. Among the merchant banks, Kleinwort Benson is a member, and Mercury International Group is applying for membership.

Plan for international express mail service

By Kevin Brown in London

THE CHAIRMEN of 12 national post office authorities have reached agreement in principle on the creation of a joint company to handle their share of the fast-growing international express mail business.

The heads of the express mail operations of most of the authorities are meeting in Brussels today to discuss the details of the scheme.

The joint venture, which will probably be called Express Mail Services, will be owned and financed on an equal basis by the participating authorities.

The company's main role will be to take over the existing international express mail sorting centre at Brussels Airport, which is operated by the Belgian postal authorities.

It is also expected to take responsibility for marketing the integrated service and chartering aircraft.

The initial participants will be the postal authorities of the UK, Ireland, France, Belgium, the Netherlands, West Germany, Denmark,

Sweden, Finland, Norway, Canada and the US.

In addition, the authorities in Switzerland and Luxembourg are expected to announce agreement shortly. Spain and Portugal are believed to be considering an application to join, and discussion have taken place with the Greek and Italian post offices.

In the long term, the joint operation could be extended to the 91 countries where postal authorities operate premium delivery services under the generic name of express mail services.

The effect of this would be to create an international network under a single name, which could be marketed as a direct competitor to the private express mail services operated by companies such as DHL of the US and TNT, based in Australia.

The international express mail market is thought to be growing at

Continued on Page 26

CONCERN GROWS OVER POLICE USE OF GAS AGAINST DEMOS

The tearful residents of Seoul

By Maggie Ford, Korea Correspondent

A SEASONED US businessman recently asked a colleague new to Seoul whether he was taking Korean language lessons. The colleague replied that he had decided to study at Yonsei University. "Oh dear," said the businessman, "how will you cope with the tear gas?"

Avoiding the effects of the weapon which police use to disperse demonstrators is a problem that affects most residents of Seoul. Tear gas shells are fired by the dozen at a number of universities routinely every day, but the fumes spread well beyond the campus.

Along with tears, they produce a burning sensation in the throat and eyes, coughing and sneezing. Those exposed regularly report respiratory and skin problems. Concern about the long-term effects, especially on children, means that people choose carefully where they live. University areas are at the top of the unpopularity list.

As South Korea starts another week in which demonstrations are likely to spill out of the campuses and into the streets, complaints

about the use of tear gas are beginning to mount.

On Wednesday, the ruling Democratic Justice Party is to hold its national convention. At the same time, a rally is planned in the centre of Seoul to protest against the suspension of talks leading to democracy and against the torture scandal which led to a number of Cabinet sackings late last month.

The police have already announced that thousands of riot police will be mobilised to block the demonstration. For the third time this year, Seoul is likely to suffer waves of tear gas as groups heading towards the rallying point are dispersed.

South Koreans may well be thankful that the police do not use more violent tactics, as is common in other countries where deaths can occur during anti-government activity. But fears are growing over the effect of large volumes of tear gas used over long periods of time.

Environmentalists have noted that trees are dying on university campuses and birds and insects

have departed because of the effects of the stronger tear gas used over the past few years. Medical staff at the teaching hospital attached to Yonsei University complain that patients, particularly children, suffer when the fumes drift into the wards.

A woman university professor, writing in a pro-government newspaper at the weekend, expressed her worry that so many women students at universities were being exposed to tear gas, whether they were involved in demonstrations or not. The health of future generations of children might be affected, she said.

The volume of tear gas used has increased significantly over the past few years. In 1985, according to Ministry of Home Affairs figures, 204,000 shells were fired. In the first nine months of 1986 the figure had gone up to 313,200, costing \$6.7m.

The total cost for the nine months of policing demonstrations was \$73m. By comparison, the cost of normal police criminal investigations

Continued on Page 26

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WHAT I WOULD DO IF I WERE PRESIDENT

Joseph Biden would start by putting a day care centre in the White House. Page 6

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EUROPEAN NEWS

PRIVATE SURVEY SHOWS THE SOCIAL DEMOCRATS LEADING THE FIELD

Politicians square up for crucial Portuguese vote

CAMPAIGNING for Portugal's general election was started although there are two weeks to go before the election race officially gets underway.

Politicians are flooding all channels of the media and noisy weekend rallies have begun as party leaders attempt to gain maximum exposure for the July 19 vote.

One of the things lacking for the moment is the dreaded loudhailer vans that blithely disregard the noise abatement laws as they blare out the same snatch of the same party song every few minutes.

The other is opinion polls: The Portuguese media is barred from publishing these from the moment an election is called.

The snap general election was called last month by President Mario Soares to solve a political crisis that began when a left wing centre motion toppled the 17-month-old Social Democrat minority administration of Professor Anibal Cavaco Silva. It looks like being a crucial time for Portugal, 14 years after democracy replaced autocracy.

The Social Democrats, under the uncompromising Prof Cavaco Silva, are aiming for a working majority. They have refused to join the Christian Democrats (CDS) with whom,

under different leadership, they joined forces in 1979-1983 as Alliance Democrática, which took 44.9 per cent of the vote in 1980.

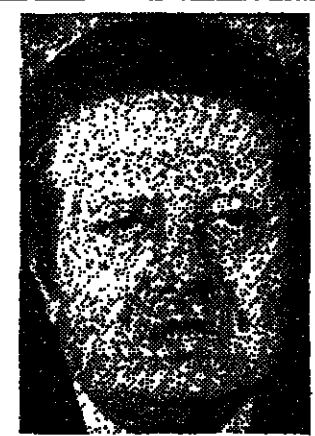
The refusal to field joint candidates does not preclude an arrangement after the elections if the Social Democrats (PSD) falls short of the 43 per cent of the vote it needs to achieve 126 seats - half the seats in parliament plus one.

Prof Cavaco Silva, who started professional life as a technocrat and since his meteoric rise to the PSD leadership in 1985 has learned to speak like a populist, is a tough political negotiator.

He offers a fairly stark challenge to an electorate that gave just under 40 per cent of the vote to the long conservative presidential candidate, Prof Diogo Freitas do Amaral, in 1985. He might be massaged into a right-of-centre majority if the PSD and CDS campaigns hit the right tone.

Either the PSD gets a majority, Prof Cavaco Silva says, or Portugal falls apart. The economy backslides into austerity, public sector reforms will be impossible and the fabric of society will unravel.

To his left is the closest potential rival is Mr Victor Constanção, leader of the Socialist PS since Mr Soares became president. His slogan is



Dr. Mario Soares

Diana Smith in Lisbon previews the activity leading up to Portugal's snap election on July 17 and examines the political remedies being offered for the country's problems.

"Vote for the PS. Even if you are not a party supporter, give us your vote to keep the PSD out."

Mr Constanção says that if the PSD gets a majority, jobs will be at stake because the PSD will introduce harsh labour laws, and the country will become unstable.

Prof Cavaco Silva is touting the record of the last 18 months of rising income and less rapidly rising prices, more stable external accounts, more investment and job

creation (though not as much as the government hoped) and the notion that if the PSD gets a majority, constitutional restrictions on full liberalisation can be abolished and Portugal can move ahead.

Mr Constanção is no adversary of liberalisation. But he has a problem: unless he can push the PSD vote well ahead of the maverick Democratic Renewal Party (PRD), it will be hard for him to stress the PS's moderate side and to negotiate for

the de-marxification of the constitution.

It was the PRD's chief, former president Gen Antonio Ramalho Eanes, who brought a censure motion last month that brought down Prof Cavaco Silva.

The PRD is not keen on constitutional change. Since its formation in 1985 it has tried to rob the PS of its traditional status as the major moderate party of the left-of-centre. It hopes the electorate will co-optate this time and it may bank on fear of outright liberalisation.

The hardline Communist Party, which did not welcome Mr Mikhail Gorbachev's Glasnost, a new alliance that does not mention the word "communist."

Its message, however, has changed little. Nationalisations are sacrosanct, as are the collectivising land reforms of 1975.

The PSD is a threat to workers and a strategic vote for the socialists is not on it, says its charismatic leader Mr Alvaro Cunhal is now in his mid-70s, the oldest of Portugal's major political leaders.

The young voter on the far left is less predictable than the middle-aged party faithful who remember the bitter days of dictatorship and

needed little persuasion to vote communist.

Generally the electorate seems to be shifting towards a broad middle ground, sloping slightly to the right or to the left according to tastes.

A private poll taken in April that cannot be published in Portuguese allowing a 3 per cent margin, suggests that the Communists and Christian Democrats will lose votes with the Christian Democrats getting 5 to 8 per cent, and 10 to 13 per cent for the Communists compared with 1985 when the Communists got 15 per cent and the CDS 10 per cent.

The PSD shows a 40 to 43 per cent vote - well above its 30 per cent in 1985.

The top figure is enough to scrape a majority; the bottom requires an alliance with the CDS, who would present a large bill in the shape of major government portfolios for Christian Democrat personalities.

The PS meanwhile looks strong at 25 to 28 per cent, far ahead of its dismal 1985 showing of just under 21 per cent.

The poll puts the PRD at 11 to 14 per cent, down from 18 per cent.

Some PRD supporters are looking for 20 per cent of the votes to turn the tables on the Socialists.

Ukrainian heads under attack over Chernobyl

SENIOR Ukrainian officials sent their children to rest homes in the Crimea after the Chernobyl accident while keeping local residents in the dark about the radiation danger, according to a Ukrainian journalist, Bester reports from Moscow.

In a strong indictment of power abuse and incompetence, published in the latest edition of the Soviet monthly Yunost (Youth), Mr Yuri Shcherbak gave the most detailed picture to date of the first hours after the nuclear accident on April 26 last year.

Quoting extensively from interviews with residents of Pripyat, the town which housed Chernobyl nuclear power plant workers and their families, he said a policy of secrecy had needlessly exposed thousands of people to excess radiation.

He also alleged that firemen, technicians and a doctor sent to the plant after the reactor exploded were not given protective equipment and were not informed of the massive release of radiation.

Mr Shcherbak named the plant's sacked former director, Mr Bryukhov, Pripyat health officials Mr Leonenko and Mr Pecheritsa and former Soviet deputy health minister Mr Vorobyev as responsible for the gravity of the situation.

The plant's new director, Mr Mikhail Umayev, told journalists recently that Mr Bryukhov and other Chernobyl officials would be judged in a trial due to open next month.

children were being allowed to play outdoors.

"They answered: 'It's none of your business. A decision will be taken in Moscow', the letter said."

"Everyone learned only later, on May 7, that a decision to send the children of the top leadership... to the Crimea had been taken immediately and that the 'chosen children were sent to a sanatorium in the Crimea on May 1'."

The evacuation of Pripyat, three miles from the Chernobyl plant, did not begin until more than 36 hours after the accident.

Mr Shcherbak said a meeting was held in Pripyat on the morning of April 26 by a senior Ukrainian Communist Party official who advised residents to go about their business as usual.

Mr Malomuzh, second secretary of the party's Kiev regional committee, ordered schools and shops to stay open and said it was necessary that scheduled weddings take place as planned.

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Cheap European air fares in the balance

BY TIM DICKSON IN BRUSSELS

THE FATE of the European Community's initiative on cheaper air fares appears to hang on the outcome of a crucial meeting of EEC transport ministers in Luxembourg tomorrow.

Officials of the European Commission now accept that there are too many outstanding differences between member states for the final package on airline liberalisation to be decided this week. But they believe that if "substantial progress can be achieved... this time... notably on the thorny question of access to established routes for new airlines—the finishing touches could be completed at a second scheduled Transport Council later this month."

The Commission has already threatened to withdraw its proposals if a political agreement is not reached by June 30. But the feeling in Brussels, in any case, is that the best chance of a breakthrough lies with the Belgian presidency of the Community.

The Danes take over the "chair" on July 1, and, while enthusiastic about some parts of the current package, they are distinctly cool about the rest and are not expected to give the issue a high priority on their policy agenda.

The next three weeks represent the main challenge for Mr Hermann de Croo, Belgium's Transport Minister, who will be anxious to bring the long drawn out political negotiations on airline liberalisation to a conclusion.

Two serious problems stand in his way. The first is that member states remain badly divided about parts of the package, which is designed to loosen the capacity and revenue sharing agreements between airlines and government, allow the greater number of discount fares, and open up routes to more competition.

At the moment the last of these is proving to be the big stumbling block. Many member states are worried by the implications for their national carriers of more flights between so-called "hub" airports like Heathrow and Charles de Gaulle and smaller regional airports.

The second problem is that, because of the delay in implementing the Single European Act, the majority voting rules enshrined in this amendment to the Treaty of Rome will not be available until July. Any agreement on air transport in June will therefore have to be unanimous.

Local election successes halt Ozal party's slide

BY DAVID BARCHARD IN ANKARA

A STRING of successes in local elections for Turkey's ruling Motherland Party at the weekend has put a temporary stop to the apparent slide in the fortunes of Mr Turgut Ozal's government.

The Motherland Party picked up 55 of 84 mayoral positions being contested across Turkey on Sunday, and polled 45 per cent of the votes.

On the face of it this was a good performance as in the 1985 general election which brought it to power, its nearest rival, the centre-right True Path Party, gained just under 28 per cent of the votes and 17 mayoral seats.

The victory had been widely predicted, although it came after a disastrous month for the Ozal government which had raised speculation about its survival.

Local elections, often fought over promises of more funds from central government to small communities are not

necessarily a good indicator of likely general election prospects. However, the results show that the Motherland Party's constituency machine is in top gear.

The results also underline the continuing decline of Turkey's social democrats. Two left of centre parties, together polled less than 17 per cent of the votes.

It seems increasingly clear that the next general election will be a contest between Mr Ozal and former prime minister, Süleyman Demirel. Sunday's results were also encouraging for Mr Demirel, a rural populist conservative, who appears to be gathering urban working-class votes by appealing to low-income groups formerly hostile to him.

Mr Turkey had a current account deficit of \$453m in the first three months of the year, 37 per cent lower than at the same point last year. A better trade performance and a higher volume of remittances from workers abroad were mainly responsible.

Shevardnadze to visit Yugoslavia

THE SOVIET Foreign Minister, Mr Eduard Shevardnadze, will visit Yugoslavia at the end of this month, a Yugoslav Foreign Ministry spokesman said yesterday. Reuter reports from Belgrade. He said that Mr Shevardnadze and his Yugoslav counterpart, Mr Rado Dindarevic would discuss bilateral co-operation and international topics. The exact date of the visit was not known.

The Soviet Union is Yugoslavia's biggest trading partner, and the volume of trade is expected to reach \$6.2bn this year, compared with slightly less than \$5bn last year.

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Relationship banking has long been at the core of IBJ's activities, which are exemplified by the prime role it played in building up Japan's industrial base. But, added to this are its unique research talents, international standing, and the ability to understand and serve clients worldwide. IBJ is Japan's biggest bond issuer after the national government with a placing power rivalled by few financial institutions globally.

The bank has emerged as a new power in the Euromarkets, as well as in other major financial markets. Managing director Hideo Ishihara explains the bank's global reach and philosophy.

By Brian Robbins



Mr. Hideo Ishihara, Managing Director, The Industrial Bank of Japan, Ltd.

IBJ: Global corporate banking for a new age

Taking the long view

The Industrial Bank of Japan has emerged as a powerhouse in Japan's banking sector by taking advantage of changes in capital markets worldwide and the ongoing liberalisation of financial markets.

As the biggest of Japan's long term credit banks, IBJ has built its expertise in the area of raising funds for industry. As part of this, it works closely with its clients to identify new business opportunities and also assists in reorganising operations to capitalise on rapidly changing business conditions.

Relationship banking, now coming back into vogue in banking circles, has long been the mainstay of IBJ's activities as it has fostered the long-term growth of clients.

"Relationships with our clients are long standing ones," explains managing director Hideo Ishihara. "We like to maintain relationships and develop them in such a way that both we and our clients enjoy the fruits of doing business over a long period of time."

Product development and innovation

Like most other business practices in Japan, the close links between banks and clients are now coming under pressure as clients become more independent and demanding in seeking new products and innovations, taking full advantage of financial liberalisation and changes in international capital markets worldwide.

"To maintain our good relations, we have to be product oriented so that we can develop the right product for clients at the right time," says Ishihara.

"This also extends to our international operations. In the traditional way, once we become a banker to a major UK company, for example, we want to develop business in a stable way. On the other hand, we have the capabilities to develop new products which give us the opportunity to approach major British companies."

Corporate fund-raising 'in our blood'

As part of the development of relationship banking, IBJ has very close and strong links with most major Japanese corporations. "We

count 90 per cent of Japan's 200 leading companies as our customers," says Ishihara. "As the Japanese market is now very important for many major companies in the world, a large number of overseas groups are now moving into Japan—either through full subsidiaries or joint ventures."

"Over the past several years, we also have been cultivating relationships with major US and European companies, helping them come to Japan to open new facilities, or introducing them to potential partners. Clearly, our close links with a large variety of Japanese companies are assisting in this area."

Established earlier in this century as a specialised financial institution, before the war IBJ dominated corporate fund raising in Japan, underwriting 80 per cent of all corporate bond issues at that time. With the subsequent division between commercial banking and corporate underwriting in Japan along the same lines as the Glass-Steagall Act in the US, IBJ opted to foster its banking business. It was, however, allowed to continue underwriting new issues by the national government and by corporations with a government guarantee.

"Of the public corporation issues under a government guarantee," says Ishihara, "we have almost 100 per cent of the market."

"In the corporate bond field we act as a commissioned bank, and we hold half the market. Therefore corporate bond underwriting is in our blood."

A talented project organizer

Its traditional strengths in relationship banking have allowed IBJ to play a unique role in building up Japan's industrial base. The merger of Fuji Iron & Steel with Yawata Iron & Steel to form the world's largest privately owned steel company, Nippon Steel, is counted as one of the bank's prime achievements.

IBJ was also a major player in the reorganisation of Japan's shipping industry into six large groups that could compete internationally, and in a number of other key industries. With Japan's industrial base under reorganisation, the bank is again deeply involved. The total reorganisation of Japan's aluminium industry, with the closure of virtually all of Japan's smelting capacity, has been

completed. Now the work to slim down the shipbuilding sector with its recent loss of competitiveness has begun.

Equally, it played an important part in persuading Walt Disney Productions to allow a Disneyland entertainment park to be set up near Tokyo—the first outside North America. IBJ is also playing an important part in a number of the large projects being discussed for the redevelopment of the Tokyo Bay Area, which will be instrumental in boosting Japan's domestic demand.

Global capital markets of prime importance

The Industrial Bank of Japan's unique fund raising capabilities give it an important edge when international corporations seek to tap the Japanese market, as more and more are now doing.

"Internationally, we have two main points of emphasis," explains Ishihara. "The first is in the securities business. Our goal is to develop business contacts, expand our placing power in Eurobond underwriting, and facilitate foreign borrowers tapping the market in Tokyo."

"We are, for example, the largest commissioned bank in foreign bonds issued in the Tokyo market, and one of the largest banks in loans for nonresidents here, and we are also well established as a major underwriter in Europe of Eurodollar and Euro-yen issues."

"The second point of emphasis is to develop relationships in the US and Europe with major corporations."

"When we approach our foreign customers, we explain to them that we can help them in Japan, so we wish to

act as a line bank in Europe or the US, and help them in Japan through our M&A work and investment counselling activities."

"For many of these companies, we are already becoming their major line bank, providing various services—tax oriented leasing business, provision of various guarantees, and so on." In many ways, IBJ's activities fall outside the mainstream of Japanese banking, since it is similar to the activities of leading US investment banks and merchant banks in that it forges a close link with clients, advising with fund raising and the like.

IBJ: An investment bank with muscle

"Traditional investment banking is going through large changes," argues Ishihara. "Increasingly, to be useful, an investment bank must have muscle, the power to close a deal for a client. It is not only brain power you need these days in investment banking, but sheer muscle."

"We have seen over the past few years many examples of US investment banks seeking to increase their capital base to cope with the changed business environment."

As a result, Ishihara argues, the pressure to do away with the divisions enforced by Glass-Steagall Act in the US are coming from both the commercial banking and investment banking sides of the equation, and that effect is also coming into Japan.

"With our sizeable capital base and placing power, combined with our strong position in Tokyo's financial market, we are an obvious place to start for any corporation hoping to tap Japan's capital markets."

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IBJ

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EUROPEAN NEWS

Wet going as Fanfani wins the Ducal dash by a short head

BY JOHN WYLES



VENICE FLOPPED its lines yesterday and produced a downpour on the opening of the world summit which soaked feet, feelings and the dignity of the arrival ceremonies for the seven heads of government.

Dignity requires a certain slowness of movement and not the brisk canter along a red carpet employed by Mr Amintore Fanfani, belying the 79 years of this very diminutive Italian Prime Minister and summit host, when he greeted the first two arrivals.

These were an apprehensive

Wilfried Martens, his Belgian counterpart, and Mr Jacques Delors, the President of the European Commission. In Brussels, where both men work, you do not organise an open air event because the climatic Murphy's law in Belgium always decrees rain like stair rods.

Italy's own version of this capricious law forced Mr Fanfani and the two representatives of the European Community to shelter under a colonnade while the military band, dripping from the ele-

ments in the open courtyard of the Ducal Palace rattled off a bar or two of Beethoven's Ode to Joy (the Twelve's anthem).

Then came the moment when the three had to take the red carpet route through the falling rain to the palace interior. Mr Fanfani waved a challenge for the others to follow. Mid-route when a somewhat overweight Mr Martens was getting up steam, the tiny Italian shout out an arm and called an abrupt halt.

A nasty accident was only narrowly avoided, and after

disentangling themselves from the ensuing pile-up, the three paused for a second and a half to bow to the guard of honour. Mr Fanfani and Mr Martens then quickly resumed their old pace, leaving Mr Delors apparently facing the wrong way and risking a distant third in the red carpet stakes.

By the time Sir Geoffrey Howe arrived two hours later, the skies had lifted somewhat, the rain had ceased and the black feathers hung a little less sadly from the bushman-type

bats sported by the guard of honour. Deputising for Mrs Thatcher, the British Prime Minister, whose electioneering schedule decreed a late arrival, Sir Geoffrey had no trouble keeping up with the Italian beneath his left shoulder, which is just as well since the Foreign Secretary is not built for speed.

As the rain was falling, President Ronald Reagan was also having trouble with his script in the dry fastness of the Cipriani Hotel. Mr Bill Plante, a member of the pool of journalists allowed in for a reverential

peep at the President's bilateral meeting with Chancellor Helmut Kohl of West Germany, threw a question at Mr Reagan about the Gulf. "Sam, I can't talk about things like that," the President answered.

The confusion was spotted by the time of the pool's next arrival for a glimpse of the bilateral with Mr Yasuhiro Nakasone. "I just want you to know that the next time Sam asks me a question, I shall call him Bill," Mr Reagan told Mr Plante.

Pope urges Warsaw to stress rights

By Christopher Bobinski in Warsaw

POPE John Paul II. at the beginning of a seven-day visit to his native Poland, the third since he became the head of the Roman Catholic Church in 1978, yesterday urged the Polish Government to respect human rights.

"Remember religious freedom, freedom of association, the freedom to speak one's own views, human dignity," he told General Wojciech Jaruzelski, the Polish party leader, in Warsaw's royal castle.

The Pope was referring to Poland's peace initiatives and Soviet bloc arms policy when he stressed that peace was inseparable from human rights and noted this was now a central tenet of church teaching. He told the Polish leader, who banned the Solidarity free trade union when he imposed martial law in 1981, to begin the "struggle for peace" at home by respecting society's human rights.

In a public statement just before the two men held a private meeting Gen Jaruzelski pledged that the process of reform in Poland was continuing. He implicitly recognised Church pressure for more democracy when he asserted that Poland was seeing the development of "socialist pluralism."

Earlier, several hundred thousand people lined the route into the city from the airport waving flags, cheering and clapping, as the Pope drove slowly past.

At the airport, the Pope spoke of the essentially religious nature of his visit. He is to attend a Eucharistic Congress. The authorities have taken strong measures to prevent Solidarity demonstrations, but groups of the banned union's supporters did chant "Solidarosc, Solidarosc" as the Pope drove past.

Thatcher extends her election campaign trail south

BY PHILIP STEPHENS

MRS Margaret Thatcher, the British Prime Minister, transferred her election campaign to the international stage last night with her arrival at the seven-nation economic summit in Venice. She will spend 18 hours at the three-day meeting.

The summit began last night with a dinner for heads of state and government.

Mrs Thatcher was said to be briefing other heads of state on her meeting in April with Mr Mikhail Gorbachev, the Soviet leader. As prospects improve for a summit between Mr Gorbachev and President Ronald Reagan later this year, Mrs Thatcher is believed to be anxious to receive credit for her role in East-West arms negotiations.

Before the opening of the formal session this morning, she will hold bilateral talks with President Reagan, a move designed to focus attention on the strength of their special relationship.

While insisting publicly that the US remains neutral in the election, President Reagan has made little secret of his desire for Mrs Thatcher to be re-elected.

According to British officials, the Prime Minister has been emphasising that Britain was playing a full role in helping the US to promote freedom of navigation in the Gulf. It has three warships in the area to defend British tankers.

There were signs last night, however, that on one issue Mrs Thatcher could find herself at odds with some of her Western allies.

Mr Brian Mulroney, Canada's Prime Minister, called on other summit leaders to issue a strong statement condemning the policies of the present Government in South Africa and called for further progress towards the dismantling of

apartheid. He was quoted by Canadian officials as describing the situation in South Africa as "the greatest human rights concern of our time."

Italy and the US were also said to favour some sort of statement on South Africa.

Mrs Thatcher, however, was said to be strongly opposed to such a public condemnation. Officials from other delegations had said that Britain had made it clear in the run-up to the summit that it regarded the issue as too politically sensitive during an election campaign.

The official said that Britain had also indicated that it wanted to focus Western attention on aid for the Front Line states in southern Africa, rather than on renewed attacks on the Pretoria Government.

In discussions on the world economy this morning, Mrs Thatcher will give an upbeat assessment of Britain's performance and prospects. In the election campaign in Britain, she has repeatedly stressed that Britain's economy is growing faster than that of the other major industrialised nations.

Allies such as France are also set to have taken the lead from the Conservative Government in introducing privatisation programmes and in other moves to liberalise their economies.

The Prime Minister will return to London at lunchtime today leaving Sir Geoffrey Howe, the Foreign Secretary, to represent Britain until the summit ends on Wednesday afternoon.

Mr Nigel Lawson, the Chancellor, who missed last night's opening dinner for the finance Ministers will pay only a fleeting seven-hour visit to Venice today.

Japan aims to avoid a 'bashing'

By Philip Stephens

"DO YOU think that there will be Japan-bashing?" inquires the anxious Japanese diplomat, "Will Mrs Thatcher attack Japan?" asks a senior correspondent of one of Tokyo's leading newspapers.

As the seven-nation summit began in Venice last night, the questions were still to be answered. What was clear was that Mr Yasuhiro Nakasone, Japan's Prime Minister, had arrived with one key objective—to keep his country out of the spotlight as regards criticism.

To try to ensure that he succeeds, the Tokyo government has launched one of the most sophisticated diplomatic offensives seen at such a gathering.

Mr Nakasone has bitter memories of last year's summit in Tokyo. As host then, he found himself at the centre of attacks from his Western allies on issues ranging from the value of the yen to his country's tax on imports of Scotch whisky.

Crucially, he failed to win a commitment from his partners to stabilise the yen. Its subsequent climb brought howls of protest from Japanese industry. Mr Nakasone was judged to have presided over a failure.

This time, the diplomatic process started two weeks ago, with the announcement of the inevitable package of measures to stimulate Japan's flagging economy. The details of the package, said by Tokyo to be worth ¥8,000bn (\$25.6bn), are still murky. But, even the most sceptical of Japan's allies concede that it seems bigger than anything previously.

It was accompanied by two separate moves designed to defuse potential "Japan-bashing" by Mrs Thatcher's Government.

Baker adapts to reduced circumstances

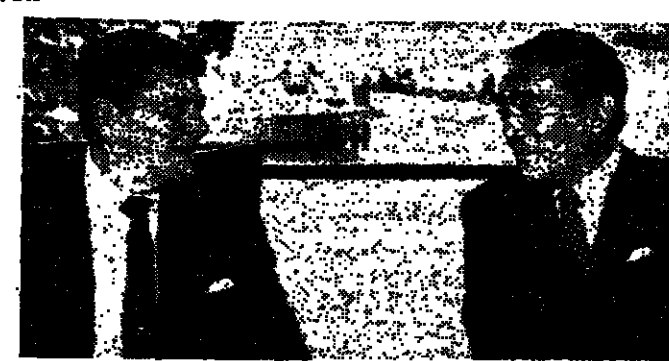
BY STEWART FLEMING, US EDITOR

EUROPEAN OFFICIALS are saying that Mr James Baker, the US Treasury Secretary, has learnt the ropes, that he is now more subtle in negotiations with them. The Americans know there is another reason for the shift in tactics. The Treasury Secretary does not have the pull at the bargaining table that he had in the first two years after taking office in 1985.

Then, with Mr Paul Volcker, the Federal Reserve Board chairman, and Mr Richard Darman, his intellectual power house, at his side, the urbane and skilful Texan was the dominant politician on the international economic scene.

He took centre stage in the management of the devaluation of the dollar after the Plaza Accord in October 1985, and with some modest success used the threat of devaluation to press his country's industrial country trading partners into adopting the economic policy prescriptions he favoured. He also changed perceptions by announcing a revision of the debt strategy and making efforts to revive growth as the focus of attention.

But as Mr Baker prepared yesterday to meet finance ministers of the other six



Mr Reagan and Mr Nakasone held pre-summit talks

major industrial countries, even American officials were conceding that the US has to play a more cautious game now. The vulnerability of the dollar on the foreign exchanges and the commitment Mr Baker has made to work for exchange rate stability means that the threat of dollar devaluation is no longer a weapon Mr Baker can control.

The last hint of such a game plan ahead of a meeting of the seven finance ministers came before February's meeting in Paris which formally established currency stability as a common goal.

Instead, in the run up to the

Venice summit the US's efforts to strengthen the process of economic policy co-ordination in a way which would help it exert additional pressure for growth on West Germany and Japan seemed to have been successfully rebuffed.

Part of Mr Baker's problem is domestic. He is the member of an administration whose leader has lost credibility and will soon lose office. Mr Darman has gone, and in spite of Mr Baker's entreaties Mr Volcker has resigned leaving a hint of policy disagreements hanging over his departure.

The US press has taken to criticising him saying his poli-

cies have failed to reduce the trade deficit and that the "Baker plan" for tackling the debt crisis has collapsed.

Such judgments are too harsh. The legacy of budget and trade deficits he inherited in 1985, and which he helped create as White House chief of staff, were not susceptible to quick solutions. The fact that Mr Baker also decided to stay on the fringe of the budget debates meant that the one economic policy tool he most needed to manipulate was out of his control.

The hint he dropped on Monday night that a tax increase will eventually be needed to tackle the deficit suggests that he may be preparing to play a bigger role on this issue next month. Were a convincing budget deficit reduction package to emerge, Mr Baker would be well placed to demand more stimulative economic policies from West Germany and Japan.

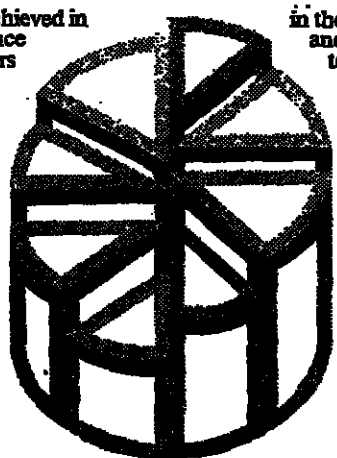
Mr Baker knows too that time is running out for him as well as for Mr Reagan. Asked here whether he would stay until the end of the President's term, he made clear he would not. He will soon be too busy trying to help his friend Vice President George Bush succeed Mr Reagan.

Isveimer Balance Sheet 1986

Newly-extended credit: 1,908 billion lire

Total loans outstanding: 7,132 billion lire

The management result achieved in 1986 confirms the confidence that the economic operators of both Southern Italy and other areas have long been placing in Isveimer: total loans increased by 30% as compared to 1985 and now account for a total of 7,132 billion lire. In 1986 Isveimer granted its customers financings



in the amount of 1,924 billion lire and extended new credit for a total of 1,908 billion lire by using funds raised for 55% in the international market. Foreign indebtedness in an approximate amount of 600 million U.S. dollars were renegotiated on more advantageous terms. Net profit for the year: 43 billion lire.

Isveimer

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Partek:

A strategy of maturity

"So many people think of electronic components when you say high-tech," says Hans J Björnberg, President and Chief Executive Officer of Partek Corporation. "Actually it's the human input that creates high technology, not the hardware."

When Björnberg says technology he means business, not glamour. Partek applies its research to producing building materials, transport equipment and profits. The result has been vigorous growth; half of group turnover is now generated abroad and about half of personnel are employed outside Finland.

By Patrick Humphreys, Nordic Communications Corporation

"The main thing is not where your headquarters are," Björnberg believes. "We want to be seen as a good corporate citizen wherever we work, and that means giving local management a free hand." The principle paid off when the company's British subsidiary, Multilift Ltd, won a £25m order from the Ministry of Defence for its demountable body system, in the face of stiff British competition.

Multilift Ltd has a strong local image, as do Partek companies in Spain, Holland, Sweden and Denmark. Local production is an essential element in company philosophy, and a key to securing contracts overseas. The strength of the whole group, though, lies in shared research. Managing Director of Multilift Ltd, Norman Eden, claims 30-50% shares of UK markets for his company's main products, hydraulically operated load-handling equipment for vehicles. "In fact these markets are relatively mature, so growth is low," Eden says. "But increasing pressure for improved productivity is now creating new opportunities, which Partek's centralised R&D programme will help us satisfy."

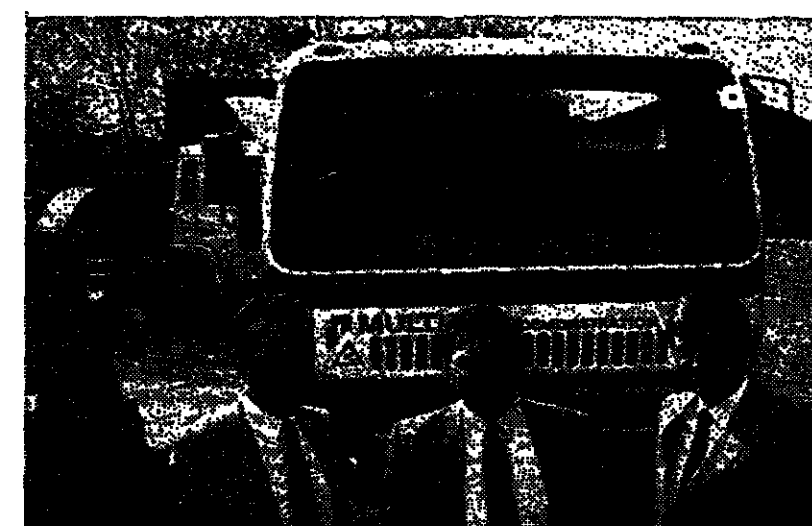
Transport logistics grew out of Partek's core business, building materials. Although there is overcapacity and tough competition in the European construction sector, the company has maintained profitability through a strategy of research and specialisation.

Less dependent on construction More surprising still, it managed to create an international operation in a field where local companies are usually dominant. Partek made its name in Europe and Asia in equipment to produce concrete elements. A more recent area of investment in Europe and North America is mineral wool, a sound and heat insulator. The company has already supplied mineral wool factories to 27 countries.

"As a result of our diversification into transport equipment, we're less dependent on the building materials market in Finland," says company president Björnberg. "But because we've also made an international business out of construction, it's clear that building materials will continue to be important to the company."

Transport and lifting equipment, though, are the star performers, the more so since Partek bought the Swedish crane manufacturer Hiab-Foco, in 1985. Hiab, which

to put together a strong product range and promote it with a strong sales network," explains Executive Vice President Carl-Gustaf Bergström.



(L to R) Norman Eden of Multilift UK, Hans Björnberg and C-G Bergström of Partek

has a 35% market share in Europe, boosted group turnover by more than 1,200 million Finnish marks (GBP 170m).

"We shall be ploughing back these profits into transport," Björnberg promises. "There are adequate opportunities for investment, and we will focus on enlarging local facilities to meet local market demand. If necessary we will divert other group resources into this area."

North American prospects The challenge of company strategy is finding the right structure for the mature industries Partek has chosen to develop.

Partek sees one of its strong points as an understanding of how to operate in a mature industry. "Our main philosophy has been

Europe remains Partek's most important market area but the company has growing interest in transport division prospects in the United States. "We are very small there at the moment, and they do have a different material handling system," Bergström concedes. "But I anticipate that we will be making a real effort in North America."

Budgeted group turnover now stands at 4.8 billion Finnish marks (GBP 685m) and the company admits that its period of rapid expansion is past. "Most of our options are in the transport sector, although we are examining some other sectors too," says Hans J. Björnberg.

"But Partek will continue to grow. We are going to be aggressive, in a positive way, wherever we are."



THE PARTEK GROUP

Head offices: Pargas/Helsinki

Key statistics, financial year ended 28 February 1987
Consolidated turnover FIM 3,860m (GBP 551.4m)
Building materials division 43.5%
Transport logistics division 28.1%
Project and Construction technology 23.7%
Light industry division 5.6%

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EUROPEAN NEWS

FIRST CASE GOES TO COURT

Equality law forces Finns to pay up or play the game

BY OLLI VIRTANEN IN HELSINKI

FINLAND has become one of the first countries to put a price on sex discrimination. More precisely, it ranges up to \$4,200.

Thanks to the new equality law discrimination against women — and men, for that matter — is now a criminal offence for which the victims can be sued for damages. The first such case is now being tested in court.

The law covers all aspects of social life except family, church and the defence forces. At first glance there seems to be little cause for the law. Finland was the first country in Europe to grant women the vote. The percentage of women MPs (32 per cent) is the second highest in Europe after Norway, and, as in all Nordic countries, two-earner families are the rule, rather than the exception. Finland's female population seems to be more equal with men than their counterparts in most other countries.

Not so, say the labour unions, politicians and the Finnish women's movement. Only 5 per cent of Finns work in places where there is about an equal number of men and women. Every third Finn has a job in which 90 per cent of colleagues are either men or women. More important, the average wage of women is some 40 per cent below that of men.

The new law came into effect at the beginning of the year with a sticky start. Appointment of the equality ombudsman, the key figure in policing the law, turned out to be difficult. Eventually, to the dismay of many women, a man, Mr Paavo Nikula, was chosen. In a sense the appointment became the first test of the law. As his formal qualifications, more than equalled those of other candidates, there was no reason to discriminate against his sex.

The law itself is far reaching. Companies cannot advertise vacancies for men or women alone. Equal wages must be paid for equal work. Job descriptions cannot be based on sex, nor can promotions, transfers or dismissals. Likewise, authorities are

required to "provide conditions for increased equality in child care and domestic work." Study books are prohibited from containing material which would "enhance stereotypical perceptions of role models in family and working life."

The law states that employers must promote equal distribution of men and women and provide them with equal opportunities to advance in their careers. There are a number of exceptions. Societies and associations may grant membership solely to men or women if this is stated in their statutes. Special protection for pregnant women is not regarded as discrimination and neither are measures which specifically aim to improve the position of either sex. The law also leaves advertising untouched.

Certain obvious vacancies, such as an actor or actress for a predetermined role, can be openly designated for one sex only. Likewise an elderly person may express his or her wish to have a private male or female nurse. The law also allows an employer to hire a relative or a friend despite a more qualified applicant of the opposite sex.

Nevertheless the principle of equality has left many employers confused. By every single requirement, including bureaucracy and certain jobs, particularly ones which demand physical strength, are simply not suited for women.

Finland's police chiefs, for example, have raised serious questions about the future of the force. More than half of the applicants are now women, and according to the new law, new appointments must reflect the same ratio.

Recently the equality ombudsman gave his first ever statement in a case in which the Ministry for Trade and Industry appointed a male to a high ranking civil service job over a more qualified female applicant. It looked very much like a political appointment (he was then trade and industry minister) but the overlooked candidate, Mrs Anna-Liisa Levenon, took the matter to the equality ombudsman who agreed the ministry had violated the law. Mrs Levenon took the case to court, which may, on the basis of the supporting statement by the ombudsman, require the ministry to pay the victim compensation ranging between FM 10,000-30,000 (£1,400-£4,200). The court has yet to make a decision. Compensation is all a suffering party can hope to receive. Victims of discrimination, like Mrs Levenon, will not get an original decision overturned. But, at least equality is now very much in the public eye in Finland.

Strike hits Ireland's hospitals

By Hugh Carnegie in Dublin

ALMOST HALF Ireland's hospitals were operating drastically reduced services yesterday on the third day of a stoppage by junior doctors, the second public service strike faced by the Fianna Fail Government since it introduced a cost-cutting budget in March.

The Irish Medical Organisation said about 900 of the country's 1,800 non-consultant hospital doctors had stopped work in 33 hospitals where no agreement had been reached on job cuts planned under a programme of severe spending cuts in the health service.

In several cases junior doctors had returned to work to ease acute difficulties in paediatric and neo-natal units but otherwise consultants provided emergency cover.

Most affected hospitals cancelled routine admissions and non-essential out-patient cover.

The DHO has called for direct talks with the Government. But Dr Rory O'Keefe, said yesterday that the dispute could only be resolved through discussions between doctors and local health authorities.

The doctors are not objecting to spending cuts and job losses in themselves but say there must be guarantees that junior doctors will not have to work excessive hours as a result. They meet tomorrow to decide whether to escalate their action.

There was no sign of a change in the government's tough line on insisting its budget cuts must stick to reduce public deficits and cut high state borrowing. In May, a strike by electricity workers ended with a pay settlement within government guidelines.

East Berlin rock fans in clashes

By Leslie Collett in Berlin

EAST BERLIN policemen using batons yesterday dispersed nearly a thousand young people chanting "The Wall must go" near the Brandenburg Gate between East and West Berlin. Nearly 30 young East Germans were also arrested during angry clashes close to the Soviet embassy on Unter den Linden Boulevard which was sealed off by the police.

The unusual clashes took place after an outdoor rock concert at a site where the former German Parliament just across the Wall in West Berlin, attracted a crowd of some 3,000 East Berliners. Hundreds of youths managed to break through a police cordon at the Soviet embassy and gathered near a barrier only 30 metres from the border in order to hear the music.

President Ronald Reagan is to speak at the Brandenburg Gate during a visit to West Berlin next Friday.

When the concert by the Eurythmics rock group was over shortly after midnight, the East Berlin police moved to clear the boulevard. Scuffles broke out and angry youths began chanting "The Wall must go," "Down with the pigs" and "Freedom and democracy."

Hundreds of East Berlin rock fans had gathered on Saturday evening on Unter den Linden to hear an outdoor concert at the Reichstag by the British singer David Bowie. The East Berlin police sealed off streets and were the object of angry abuse from youths prevented from getting closer to the border strip to hear the music.

Authorities ordered a police alert for a concert last night by the British rock group Queen, which had been expected to attract a similar crowd in East Berlin.

China's Prime Minister, Zhao Ziyang, arrived in East Berlin yesterday for talks aimed at restoring cordial links, Reuter reports from East Berlin.

Peter Blackburn reports from Abidjan on plans to expand the role of the 75-member bank

Huge capital increase for African Development Bank

MR BABACAR N'DIAYE, the president of the African Development Bank, will be seeking to establish the claim that his institution is one of the most effective instruments for channeling development aid into Africa at the bank's annual meeting in Cairo which starts today.

The Abidjan-based bank, which includes 50 African and 25 non-African members, is poised for a great leap forward. During the next five years the bank's capital, which includes the soft loan facilities, African Development Fund and Nigeria Trust Fund, plans to lend over \$800m—roughly equivalent to its entire lending over the past 20 years.

The expansion in the bank's activities is based on three developments: 1. The bank's governors are expected in Cairo to approve formally a 200 per cent increase in its capital. This will raise its capital to \$20.8bn from \$6.9bn and put it in the same league as other multilateral development banks. 2. The governors will also have a third round of talks concerning a substantial replenishment of the African Development Fund. Mr N'Diaye is seeking to double the fund's resources to \$3bn for the three-year (1988-90) lending period in order to help meet the "critical" needs of the poorest African countries. 3. Mr N'Diaye will be looking for endorsement from the governors for a radical and controversial reorganisation recently carried out.

ment bank has obtained the increase it requested even though it was the largest ever. The "massive" support given by non-African countries, including the US, was according to observers, exceptional, especially in view of their criticism of other development banks.

The huge capital increase will enable the bank greatly to expand lending and consolidate its role as an "important motor" in the drive towards African development, Mr N'Diaye said. Observers point out, however,

that the non-African countries have reduced the bank's original \$10.6bn five-year (1987-1991) lending target to \$6.4bn pending a mid-term review.

Although this was severely resisted by Africa members, Mr N'Diaye recognises with hindsight that the decision was "prudent" and will help to safeguard the bank's financial ratios and two triple A and one Double A credit ratings.

Observers point out that an astute formula enables even the poorest African countries to subscribe to the huge capital increase. Only 0.25 per cent of the increase is paid up and this is spread over 10 years for African members.

About half the bank's African members are in arrears on previous capital subscriptions and non-African countries have insisted that voting rights should be linked to effectively paid up capital stock.

However, in order to preserve the African members' two-thirds voting majority, unsubscribed capital stock may be transferred between them.

No such problem occurs with the fund whose resources are mainly subscribed by non-African members.

In the first two funds meetings in Rome and Paris Mr N'Diaye and his colleagues have presented the case for substantially increased aid for Africa's poorest countries in order to reverse declining per capita incomes.

The bank president has argued that these countries can absorb increased concessional aid, notably through structural adjustment and other non-project lending, to support policy reforms. Such lending would be co-ordinated with the more experienced World Bank.

Finally Mr N'Diaye will explain to the AFD's governors that the recent bank reorganisation was necessary to enable the institution to effectively administer the planned big expansion in lending.

In contrast to Mr Barber Conable, the World Bank president, Mr N'Diaye has been criticised for moving too fast.

The implementation, not the principle, is contested, one non-African executive director said. "It was a mistake to start with a big batch of promotions. It gives the impression the bank is full of chiefs," he added.

For the first time, promotions have been made on merit instead of length of tenure, a close aide to Mr N'Diaye explained.

However, critics within the bank complain of arbitrariness, regional and religious bias in favour of French-speaking West Africans and Moslems, repayment of election debts and parachuting in outsiders.

The criticism was strongly rejected by Mr N'Diaye who points out that the reorganisation was first planned by his predecessor three years ago and

Some observers say that more attention should be paid to "quality" rather than "quantity" of lending, and suggest greater impact could be made with "fewer dollars and more homework."

While wishing to preserve the African character of the bank non-African countries would like to make it more efficient and encourage lending in areas such as environmental protection.

Although they understand the African desire that the AFD should not be a "carbon copy" of the World Bank, they are sometimes uneasy about lending policy.

For instance there is concern about the bank's recent decision to grant Zambia a \$19.2m loan, despite the fact that it has abandoned IMF austerity programmes and limited debt repayments.

Some observers are concerned that the Bank may be trying to expand both "too fast" and in "too many directions at once."

Last year lending by the AFD group rose 42.1 per cent to \$1.6bn and disbursements by 26 per cent to \$672m.

Bank lending rose 46 per cent to just over \$1bn—the first time it has broken this barrier. Renewed borrowing by Nigeria and Algeria after an absence of nearly 10 years was a major factor behind the big increase.

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Sri Lankan forces renew Jaffna offensive

By John Elliott in Colombo

SRI LANKAN armed forces have started the second phase of their military operations against Tamil extremists in the northern peninsula of Jaffna, according to sources in India's High Commission in Colombo.

This action is believed to include air strikes and bombing, despite an explicit request made by the Indian government for a halt to Sri Lankan air strikes last week, that there should be no such aerial bombardments. Government forces are estimated now to hold almost half the land area of the peninsula.

India now has to consider whether to try to assert its authority and force a wider spread international criticism of its actions, or to accept denials issued by the Sri Lankan government that it had started a second phase.

Significantly, senior Sri Lankan ministers and officials are most anxious to emphasise their denials that there have not been any air strikes in the recent operations.

According to Sri Lankan officials, the offensives of the past few days, which have been completed, were only necessary to clear a half mile strip between Palali airport on the north coast and the main north-eastern area of Vadamarachchi captured last week, plus an area two and a half miles from the adjacent sea.

However, observers believe that these offensives are actions against the extremists, plus other troop movements from the east, are not merely piecemeal mopping up operations for phase one. It is being suggested that the offensive phase two, already in operation for three days, which could take the forces to the outskirts of Jaffna city within two or three more days.

It is not yet clear whether an attempt would then be made to take Jaffna city, with a serious risk of thousands of civilian casualties, or whether the troops would pause on the perimeter of the city to allow civilians to move out.

India now has a problem of credibility, unless the suspicions of its Colombo High Commission are wrong. The main purpose of its air drop of food supplies last week was to assert some authority over the course of the offensive against the Liberation Tigers of Tamil Eelam, the main extremist group wanting some form of independence or devolution in the north and east of the island.

Some diplomats believe the force of India's military message was blunted by conciliatory remarks made by the Indian Government at the end of last week about having talks with Sri Lanka.

Meanwhile, the Sri Lankan Cabinet is split about how to respond to India's suggestion of more talks on the ethnic crisis. Some moderate ministers want to rebuild relationships, while others are believed to be directly or indirectly involved in organising a massive demonstration against India which has been postponed from yesterday morning to this afternoon.

Lebanon divisions deepen over Karami's death

LEBANESE Moslem leaders gathered in west Beirut yesterday to consider a worsening dispute with Christian President Amin Gemayel over the unsolved mystery of Prime Minister Rashid Karami's assassination. Reuter reports from Beirut.

Mr Karami, a veteran Sunni Moslem politician with close links to Syria, died on June 1 when a bomb exploded on an army helicopter taking him from north Lebanon to Beirut.

President Gemayel has ordered official inquiries, but Moslem militia leaders and politicians have accused him of hiding the truth.

Parliamentary Speaker Hussein Russell, who resigned on Friday over the affair, Acting Prime Minister Selim Hoss and Shiite militia leader and Justice Minister Nahh Berri joined other Moslem leaders to discuss the controversy.

There was no report on the outcome of their talks.

Political sources said a Moslem delegation was expected to travel to Damascus shortly. Syrian sources said Druze militia chief Walid Jumblatt held a two-hour meeting with



Mr Amin Gemayel

Vice-President Abdel-Halim Khad dam in the Syrian capital.

Beirut newspapers said the Syrian leader wanted to mend a rift between former allies Mr Berri and Mr Jumblatt, whose men fought in the streets of west Beirut in February.

Mr Jumblatt has accused Mr Gemayel, the army and the Christian Lebanese Forces militia of involvement in Mr Karami's murder.

S Africa union man held

A HIGH-RANKING official of South Africa's largest black labour federation was detained by security police yesterday in a pre-dawn raid on his home, the Congress of South African Trade Unions said, AP reports from Johannesburg.

Mr Mufamadi, COSATU's assistant secretary-general was taken from his home in Soweto by officers who spent 90 minutes searching the house.

The congress said the detention was part of "an orchestrated attack" by the Government aimed at weakening or destroying the 650,000-member organisation.

By restricting and obstructing the work of COSATU the Government is working directly to disrupt and destroy the movement toward a democratic society," Mr Frank Meintjies, a COSATU spokesman, said in a statement.

"The immediate negative consequences will be felt in the area of industrial relations."

Hundreds of officials and members of COSATU's affiliated unions have been among the estimated 25,000 people detained without charge at some point during the current state of emergency.

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An unnamed senior official of the Japanese foreign ministry was then quoted by the Japanese press as saying Mr Deng appeared to have become disinterested from the true state of Japan-China relations.

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Killers strike at Manila police

BY RICHARD GOURLAY IN MANILA

SENIOR MILITARY officers yesterday said urban units of the Communist-led New People's Army were responsible for killing some of the 20 policemen and soldiers shot dead in Manila in the last two weeks.

Gen Renato de Villa, the Philippine constabulary chief, said the resumption of attacks was "psychological" and designed to show they are able to operate in Manila where there was no clear confirmation from the NPA that they have launched an urban assassination

campaign as there has been in the past. However, a Manila newspaper quoted a man who said he was the leader of an urban cell claiming responsibility for the killings.

Meanwhile, the president of the Land Bank of the Philippines yesterday recommended to President Corason Aquino that she limit legislation for land reform initially to lands where no programme can be immediately implemented.

The new proposal is backed by Mr Jaime Ongpin, Finance Sec-

retary, who is among a number of conservative figures who believe that comprehensive land reform covering all arable lands is essential to undermining the Communist-led insurgency.

The alternative proposal presented to Mrs Aquino yesterday would cover reform of about 77 per cent of all arable lands. It would include rice and corn lands not covered in 15 years of an ineffective programme under former President Ferdinand Marcos, idle lands and government-held lands.

pan-China relations," Mr Fujita said.

Mr Fujita said the Japanese Government and people highly appreciated how much Mr Deng had contributed to bilateral relations and had no intention of criticising him.

Mr Fujita's comments were reported by a Foreign Ministry spokesman.

Mr Deng's criticisms included a remark that an increase in Japan's military spending would please the few people in Japan who wanted to see their country become a strong military power, according to a visiting Japanese delegation.

This was a reference to Japan's decision last December to boost its military spending for the 1987/88 financial year beyond a self-imposed ceiling of one per cent of gross national product.

Deng also criticised Japan's trade policies and a court judgment in favour of Taiwan — and against Peking — over ownership of a student hostel in Japan.

Mr Muhammad Khan Junejo, the Prime Minister, yesterday told a 14-member committee it had just 24 hours to come up with ideas for making the budget acceptable to the masses.

The budget, announced on Thursday and due to take effect on July 1, contained Rs 26bn (\$1.15bn) of new taxes — three times last year's amount. They included a controversial new defence tax and higher duties on most petroleum products, electricity, natural gas, cigarettes, beverages and telephone calls.

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Masinde dies in Kenya

MR ELIJAH Masinde, the leader of western Kenya's Dini ya Musambwa sect and a thorn in the flesh of successive colonial and independent Kenyan governments, died yesterday at the age of 75, Reuter reports from Nairobi.

Mr Masinde founded his African fundamentalist sect in 1942 as a direct challenge to the British authorities, urging his followers to destroy their identity cards and not to pay taxes.

He was deported to the island of Lamu on the Indian Ocean coast in 1948 and detained there until May 1961.

Mr Masinde, who described himself as a prophet, continued to oppose secular rule after Kenya's independence in 1963 and spent much of the rest of his life in and out of prison.

He died at home in Maine village near the western town of Bungoma, 200 miles northwest of Nairobi.

Uganda has received short-range anti-aircraft missiles and large artillery pieces from Libya and has deployed some of them against rebels in the north-east, according to diplomatic sources, Reuter reports from Nairobi.

The arms arrived at Entebbe airport near the capital, Kampala, last Wednesday aboard a Libyan aircraft and were then sent east in a heavily defended convoy, they said.

Pakistan to reshape budget plan

PAKISTAN's unpopular new budget is to be hurriedly reshaped following widespread protests against new taxes and a day of rioting in which a man was shot dead by police, Reuter reports from Islamabad.

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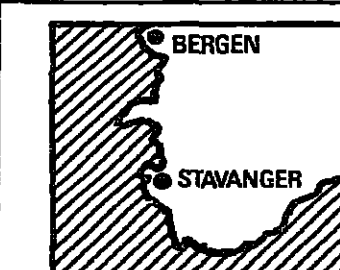
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A PARTNER FOR THE FUTURE

What IRI is and what IRI is not

IRI is a State Corporation, but the companies it controls are not state owned companies. They are joint stock companies which are subject to the norms governing Italian private companies.

The shares of the companies it controls can be sold privately and quoted on the Stock Exchange. There are state-participation companies in France and the United Kingdom, but the formula adopted by IRI has, compared to the other models, an essential organizational peculiarity: the operational companies are integrated within an industrial group, rather than being operated singly under the control of different government ministries. This characteristic is important, because it allows the operation of the IRI Group according to criteria and strategic measures which are comparable to those used by large business corporations.

Crisis and reorganization

After the Second World War, IRI played an essential role within the Italian economic system, by intervening to eliminate the bottlenecks to development which existed in the basic industries and in the transport system: steel, highways, airlines. Later, IRI had to face the consequences of the crisis which exploded on a world scale during the Seventies, while intervening both to support the Italian productive system, and supporting the restructuring of its own sectors which were in a state of crisis. It also had to redirect its productive efforts toward technology areas: the areas which are ushering in the new industrial scenarios of the end of this century.

When, at the start of the Eighties, the reorganization of both the economic and financial sectors was started at IRI, losses had reached 8 percent of the total sales of the Group and the number of employees surpassed 540,000. Five years after the start of this important reorgan-

ization, IRI has once again reached the break-even point. Important sectors, such as aerospace, telecommunications, plant construction, food industry were loss-makers in 1982. Aeritalia, Selenia, Italtel, Ansaldo and SME the most important companies which were affected by market conditions, are again profitable. The IRI Group still contains some holds in the red, but they are mostly confined to sectors where the crisis is still at its peak in Europe and around the world: first of all steel manufacture and shipbuilding. Today, the Group has 440,000 employees, which make it second in the world after General Motors in personnel numbers. Total sales, which were 33,000 billion lire in 1982 have increased to 47,000 billion lire in 1986. In this category, IRI stands in the fourteenth place among the world's great corporations and holds the third place outside the United States. Financial charges which had reached 18 percent of sales in 1982, dropped to more than half, at 8 percent.

Services, manufacturing, engineering and construction: one strategy

IRI has a somewhat complex organization: as central holding it controls banks like BANCA COMMERCIALE ITALIANA, CREDITO ITALIANO, BANCO DI ROMA, BANCO DI SANTO SPIRITO, Mediobanca and sectoral subholdings. The main subholdings are FINMECCANICA, STET, FINSIDER, ITALSTAT, SME, FINCANTIERI, FINMARE, FINSIEL, ALITALIA which in broad terms

cover three operational horizons: service, manufacturing, engineering. Within these horizons there are specific sectors where the presence of IRI is particularly relevant for the Italian economic system: in services Sip covers 80 percent of the Italian TLC traffic, ALITALIA 90 percent of air transportation, FINMARE 20 percent of maritime transportation, Autostrade 50 percent of highways. IRI banks cover 47 percent of national lending. In manufacturing FINSIDER has 55 percent of total national production of steel, FINCANTIERI 70 percent of shipbuilding, Selenia and Aeritalia 55 percent of aerospace, Italtel 50 percent of TLC switching, Sgs 98 percent of microelectronics, SME 20 percent of food industry. In engineering Ansaldo covers 65 percent of the energy sector, Italmipanti 25 percent of the industrial sector, and the ITALSTAT companies 47 percent of the infrastruc-

ture an environment protection sector.

The return of private capital

IRI's finances at the start of the Eighties were in very critical condition. Self-generated resources had been drastically reduced, and further state contributions were impossible. A large plan for financial restructuring was started and privatization played a major role. This meant sales of companies or parts thereof: of marginal companies without a specific strategic mis-

sion: of companies which were loss-makers but which were of potential interest to private investors: of companies which could have reached their break-even points, but did not appear coherent with long-term objectives. From 1983 until today, 23 companies of various sizes from the giant Alfa Romeo to the small Ducati have gone into the hands of the private sector, where they have been able to display renewed vitality. Privatization meant also selling of stocks, exceeding majority control, of companies in IRI portfolio already listed on the stock market as well issuing convertible bonds and warrants. Moreover five IRI companies have been quoted for the first time on the stock market: Sirti; Aeritalia; Credito Fondiario; Autostrade and Ansaldo Trasporti. The major part of the sales took place on the Italian market, although two very important invest-

ments (200 billion lire by the BANCA COMMERCIALE ITALIANA and 180 billion lire by STET) took place in 1985 on the international market. Capitalization of the 18 IRI companies on the Milan stock market amounts to more than 20 percent of the total market; the number of companies listed is 11 percent; dividends amount to 35 percent. Globally, the launching of shares on the market allowed an income in the past four years of over 5,500 billion lire.

A Group open to the world

Deep changes are affecting relations among the main industrial companies on the world arena, and new spaces for alliances are being created, which will transform in the next few years the entire horizon of international cooperation. Thus, for the future, internationalization is a compulsory step. In order to continue in its mission to serve the country, IRI must contribute to maintain the Italian industrial system in fine tune with that of the most advanced nations of the world.

The decision of the Italian government to proceed to a progressive liberalization of capital markets shows clearly the path to follow. For the IRI companies, especially, internationalization coincides with the search for more adequate productive dimension. A concrete example is the recent agreement signed between STET and THOMSON in the microelectronics sector an agreement which was born of the need to cover ever more costly research and development projects.

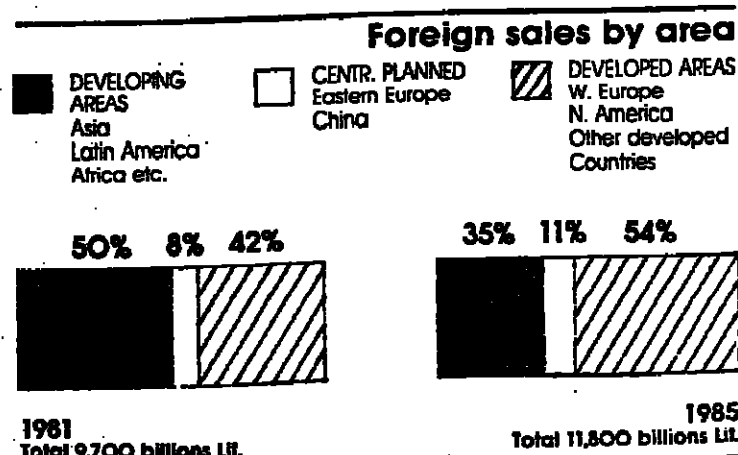
The same applies to the agreement between STET and FIAT in the telecommunications sector, which gave birth to Telit. This increases the power of the Group on going to international negotiations.

In the aeronautics sector, Aeritalia has been for a long time a partner of the main international constructors. Examples are the participation in the construction of Boeing 767 and of ATR 42 with Aérospatiale, and the recent agreement with McDonnell Douglas for MD-11.

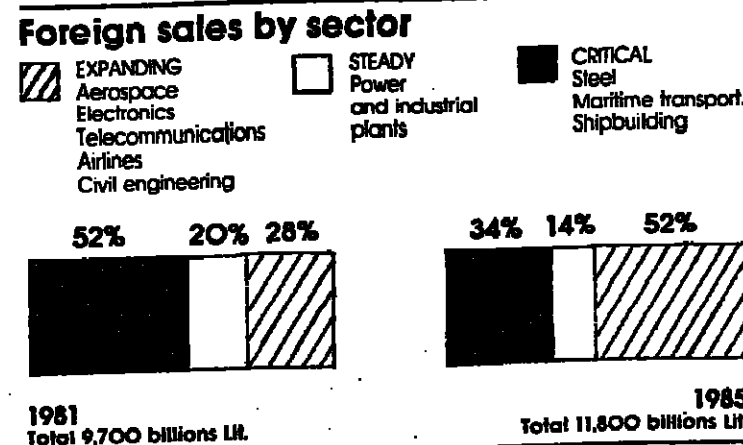
The same goes for the sector of energy plant construction where Ansaldo has been cooperating with General Electric and Westinghouse. The search for partnerships concerns all sectors.

The steel crisis will cause all structures to be reconfigured not merely at a European level, but perhaps on a world scale. The days of a national steel program will soon be over. The proof is the difficulty of overcoming the crisis which is presently affecting this sector. But the air transport sector is also nearing a season for new agreements and mergers by national companies, according to a trend of deregulation which is affecting world fares.

On the other hand, the foreign component of IRI is already playing an essential role. The revenues from foreign activities account for 26 percent of total sales and nearly 40 percent if one considers manufacturing activity. They come from 120 companies with headquarters in Italy, which have exported about 10,000 billion lire and from 90 companies which operate entirely abroad, with world sales in the area of 2,000 billion lire. The IRI Group also has minority shares in 30 companies located abroad. IRI's propensity for foreign markets and for agreements with foreign partners are accompanied by a progressive reevaluation of its qualifications in the technological and commercial areas. This is due to the growth of exports of high technology products and the growing importance of trade with the highly industrialized countries.



IRI GROUP: CONSOLIDATED SALES AND TOTAL BANK LENDING 1986 (billion lire)	
FINSIDER	10,892
FINMECCANICA	7,455
STET	14,414
ITALSTAT	3,197
SME	3,417
FINMARE	1,264
FINCANTIERI	1,152
FINSIEL	447
ALITALIA	3,738
RAI	2,177
OTHERS	232
CONSOLIDATED SALES	47,074
TOTAL LENDING BANKING SECTOR	136,100



VENICE: THE BIG SEVEN SUMMIT

AMERICAN NEWS

Contra questions to North 'lasted five minutes'

BY LIONEL BARBER IN WASHINGTON

PRESIDENT Ronald Reagan's chief investigator of illegal US intelligence activities questioned Lt-Col Oliver North in 1985 for five minutes only, as part of an official inquiry into the colonel's support of the Nicaraguan Contra rebels.

The inquiry was conducted in August 1985, when several US newspapers wrote detailed accounts of how Col North, a middle-rank aide on a National Security Council staff, was involved in private fundraising on behalf of the Contras during a Congressional ban on US aid to them.

Mr Bretton Sciaroni, a lawyer serving the President's Intelligence Oversight Board, told the Congress yesterday that he interviewed the chief counsel at the NSC, Commander Paul Thompson, for 30 minutes, and then spoke to Col North very briefly in his White House office.

Congressman Tom Foley of Washington exclaimed: "And

you consider this to be a thorough investigation?"

Mr Sciaroni, once an academic at the Hoover Institute and the American Enterprise Institute in Washington DC, specialising in public affairs, said he had no experience of intelligence matters or investigations until he joined the Intelligence Oversight Board.

He said that, during his investigation of Col North, he visited Commander Thompson, who told him that some of Col North's files were not available for inspection because they were personal and related to current intelligence matters. He had no powers to subpoena and took Col North's word that he was "not involved in illegal activities".

Mr Foley asked: "Do you consider that you were given inadequate, incomplete information? Do you consider you were misled?"

Mr Sciaroni at first declined to answer, then said: "It would appear so."

PRI drops bid to expel Mexican reformer

BY DAVID GARDNER IN MEXICO CITY

MEXICO'S RULING Institutional Revolutionary Party (PRI) has withdrawn its attempt to expel the leader of the so-called Democratic Current within its ranks, Mr Cuauhtémoc Cárdenas.

Mr Jorge de la Vega, PRI chairman, has three times in the past week explained that Mr Cárdenas, a former state governor and senator, remains a party member.

The PRI leaders effectively excluded Mr Cárdenas from the party in March, through what it then thought was an inspired manoeuvre. It replied to his open letter, which said he no longer recognised the moral authority of the PRI leaders by stating that the former governor had decided not to collaborate further with the party.

The leaders hoped thereby to avoid a messy procedural battle over outright expulsion. Mr Cárdenas and his Democratic Current colleagues, particularly Mr Porfirio Muñoz

Ledo, a former PRI chairman, and education and labour minister, chose to ignore Mr de la Vega and take their case to the party rank and file.

This has raised Mexico's political temperature considerably, in an already difficult process whereby President Miguel de la Madrid, in conclave with the main Mexican and party vested interests, is choosing his successor, who will probably be unveiled in the second week of October and elected next summer.

Mr de la Vega is engaged with his colleagues in what the 70-year-old regime calls taking soundings when the PRI's stock among Mexicans is at rock bottom.

Mr Cárdenas and Mr Muñoz Ledo are impugning the system through which the president is chosen, calling for an open campaign inside the party, to be decided by a vote, rather than presidential soundings and eventual declaration.

Arbitration upheld for brokerage disputes

By William Hall in New York

THE US brokerage industry yesterday won a long-running battle to have disputes between brokers and their individual clients resolved through arbitration rather than by resort to courts.

The US Supreme Court yesterday endorsed a Federal Appeals Court decision in New York which had earlier permitted two small investors to sue their broker for fraud in a US court.

Although they had signed the standard brokerage contract which calls for any disputes to be settled by arbitration, the appeals court had ruled that a court, rather than an arbitration panel, is the proper place to hear law suits brought under the general anti-fraud provision of the 1934 Securities Law.

The seven-year-old legal battle, which arose after a New York couple had alleged that a Shearson Lehman Brother's broker had lost a lot of their money after charging huge commissions, has been closely followed by the US securities industry because it could have changed forever the way brokers settle disputes with their customers.

There has been considerable concern within the brokerage industry that if the arbitration clause in the standard brokerage contract was no longer upheld, brokers would be vulnerable to massive lawsuits and unpredictable jury awards. Critics of the present system have argued that arbitration favours the brokers, because the arbitrators are often former employees of the brokerage industry.

The Supreme Court ruled yesterday that neither Federal Securities Law, nor the Federal Anti-Racketeering Law, bars enforcement of arbitration agreements for lawsuits against brokers charged with fraud.

The justices were unanimous in ruling that racketeering law claims should be arbitrated but divided five to four in saying that violations of the securities law anti-fraud provision should also be arbitrated.

Edward L. O'Brien, president of the Securities Industry Association, the main trade association for the industry, welcomed the decision.

Stewart Fleming weighs up a young Democratic contender for the US presidency

A man who moves to America's new beat

SENATOR JOSEPH BIDEN, 44, tall and elegant is sitting in a New England Telephone Company factory in Dover, New Hampshire, surrounded by a handful of working women.

"If I were President of the US the first thing I would do is put a day care centre in the White House. I mean that seriously." Then he asks, how many of you working women have got that call at 7.30 in the morning from the person who looks after your children during the day, or your child is sick, and you face the decision, "What shall I do?" So, he goes on, you call up the boss and you say "Hello I'm sick."

It is vintage Joe Biden. He is talking the language of his audience, making them laugh, convincing them he understands their problems. More important he is, through an every day homely example, describing for them what sort of President he wants to be, what sort of problems he believes he will confront, and how he will try to deal with them.

The President, he says, has a bully pulpit, and its his job to use it.

But there is another message he is conveying, one which touches on a central theme of the campaign for the Democratic Party. Presidential nomination he will launch this week. A new generation of Americans is coming to political power. Almost half of those who vote in the next presidential election will have been born since World War Two.

The America they are living in is not the one they grew up in, he says, the one in which dad went out to work and mom stayed at home to look after the family. "Six out of ten kids in high school today when they graduate, will have

gone through divorce," he says. It is a time for change.

Accompanying that change, the adjustment of management relations to make the US economy more efficient, making the vital decision on whether to "nuclearise the heavens" or complete "the most significant arms control agreement in human history," these are decisions which, these are decisions which, the next President of the United States will face. "I look at all this, to sum it up," he told his enraptured audience "and I see the next President of the United States has a chance to the genuinely bend history, just a little bit. That doesn't happen to many people who get to that office."

One question Senator Biden will not find himself having to answer very often in the months ahead is "Why do you want to be President?" He exudes a passion for the office. "I would rather not win the nomination than then lose the election," he says, as he explains why he is trying to adopt positions which will appeal not just to the Democratic Party activists who turn out in primary elections, but also to the electorate at large.

So far as the Congress is concerned "I was the first person categorised as a liberal or progressive (Democrat) who said we must get tough on crime." I have been somewhat critical for six years of my party's unwillingness to take on entrenched interest groups on matters that were not taken on that no longer work."

Senator Biden has indeed shown a willingness to take unpopular positions, coming out for example, against busing to integrate schools, a move which angered liberal Democrats. But he has also carefully carved out a position on trade policy which

he can sell to the protectionists within the Labour movement whose support he will need to win the nomination and the Presidency.

Defending himself against the charge that his position on trade policy is opportunistic—it calls vaguely for retaliation against surplus countries with unfair barriers on a dollar for dollar basis—Senator Biden

ultimately defeated. "Protectionism would be the worst possible policy," he says, "but he indicates that sharing the burden of responsibilities amongst the Western allies is an issue he would want to address."

"I would expect a President for us in a friendly way and open and private way to begin to redefine the relationship," amongst the Western allies.

Senator Biden's critics argue the combination of his short attention span coupled with his finely tuned political antennae have prevented him from sticking patiently with issues in the way which is needed to develop a strong legislative record on Capitol Hill.

After having a major impact on the arms control debate at the end of the Carter Presidency, Senator Biden was perceived to have withdrawn from the issue when Mr Reagan took office. He tired too of the budget policy debate and ultimately resigned from the Senate budget committee. Both were arguably shrewd political moves at the time given the stalemates which ensued. But it has left a question mark hanging over Senator Biden's commitment to the substance of the policy issues, although not over his intellectual capacity to grapple with complex issues.

Neither are there any doubts about his personal strength or sincerity. Within weeks of his victory in the first Senate race in 1972 his first wife and baby daughter were killed in a car crash and his two sons seriously injured. He was persuaded to take his Senate seat nevertheless, but has spent four hours a day for the past 15 years commuting between Washington and his home in Delaware. He married again in 1977.



Senator Joseph Biden

retorts "we run the risk of a major rout on trade. Unless we deal with it in three years there will be a call to bring home American troops that is genuine and real. I believe you will see a serious effort to talk about Japan having to remilitarise to take care of their ocean."

"I would argue," he goes on, "that my trade policy is proportional. It must speak to the pain and the confusion and the anger (of American workers) and at the same time do it in a way that allows us not to become isolated, insulated and

embarrassed."

Senator Biden can also call upon substantial material resources. In the first three months of this year he raised \$1.7m, most of it in a single month — the largest sum raised in that period by any candidate and enough which caught the attention of Washington's political professionals.

He also has in his corner the man many believe to be the best political strategist in the ranks of the Democratic Party, Mr Patrick Caddell.

At the core of Senator Biden's campaign is the conviction that the American Presidency is an institution which can, in the right hands and at the right time, provide leadership which can change the way the nation develops. He cites President Franklin Roosevelt as a President who displayed the public and political skills to do just that and he believes that President Ronald Reagan "touched a nerve" of the latent idealism he detects in the new generation coming to political power in America.

"If you listen to the music in your country as well as mine," he says, "if you listen to the lyrics of US out of Ireland, of Bruce Springsteen, listen to what these kids say, go a little bit and watch US stand up before 30,000 kids and speak about Martin and John... there is a message to the music again, don't want to overstate it but it's there. I think one of the reasons the fundamentalist movement took root among young people was because of their desire to want to belong."

This week Senator Biden formally sets out on the long journey which he believes will give him the chance to marshal these forces and create out of the pressing economic and social problems which America faces not disaster, but opportunity.

Alfonsin takes labour troubles to Europe

BY TIM COONE IN BUENOS AIRES

PRESIDENT Raul Alfonsín of Argentina was to arrive in Switzerland last night to address the annual meeting of the International Labour Organisation.

The high-powered nature of his delegation, however, indicates that substantive talks are likely on issues such as Argentina's foreign debt, disarmament and the Falkland Islands.

Mr Alfonsín was hoping to be

able to present to the ILO an image of greatly improved labour relations in Argentina, and the realisation of a social contract.

The Government has come under sharp attack from the unions for the continued existence of repressive labour legislation introduced during the military juntas of 1976-83, and the ILO has echoed these criticisms.

New labour legislation, to be introduced to Congress on June

17, is intended to return the control of welfare funds to the unions, re-introduce free collective bargaining and to cancel trade unions' debts which resulted from the intervention by the armed forces after the 1976 military coup.

Even so, the powerful General Confederation of Workers is considering a public attack on Mr Alfonsín's economic and labour policy during the ILO meeting, which could embarrass him.

On the debt issue, flight of capital from Argentina amounts to about half of its foreign debt of \$54bn. About \$2bn of the down capital is estimated to be deposited in Swiss banks, which in turn hold about \$2bn outstanding loans to Argentina and have built up large reserves against possible losses on the debt. They could be potential beneficiaries of Argentina's recently announced debt capitalisation scheme.

Guerrillas killed in Colombia

MILITARY authorities in Colombia said yesterday Government troops had killed 16 left-wing guerrillas in three provinces, Reuters reports from Bogotá.

They said troops also wounded 16 rebels in weekend fighting with guerrillas of a grouping of three left-wing forces, adding that a Government helicopter was damaged by guerrilla artillery fire in the south western province of Cauca.

WORLD TRADE NEWS

Fibres setback for Akzo in Du Pont battle

BY LAURA RAUIN IN AMSTERDAM

AKZO, the Dutch chemicals company, has suffered a potentially serious setback in its super-fibre battle against Du Pont, the US chemicals group, with a High Court decision in London favouring Du Pont.

The High Court ruled that Akzo had infringed Du Pont patent for the production of KEVLAR, a super-strong and lightweight aramid fibre used in tyres and aircraft among other products.

The judge ordered the two companies to return within three weeks with an agreement in line with his decision, presumably forbidding Akzo to sell its TWARON aramid fibre in Britain, although no such sanctions were spelled out in the judgment.

Akzo will decide whether to appeal against last week's high court ruling after the forthcoming negotiations.

Britain is considered the second most important country for aramid fibres after the US, with the worldwide market expected to climb to \$1bn a year. An Akzo spokesman said yesterday that it was not clear whether the Dutch company must stop exporting TWARON or stop selling to clients who use the fibre in products sold

in Britain because the judge upheld only one of Du Pont's patent claims.

Moreover, a second, separate, patent suit over aramid fibres is pending in the High Court with judgment expected in December. In that case, Akzo is suing Du Pont for alleged infringement of a solvent patent.

Akzo and Du Pont are waging legal battles in about 10 countries in an effort to win recognition of their own patents and forbid violations by the rival. The companies have been battling for nearly 10 years over the lucrative fibres, which are heat resistant and believed to have the support of the International Technology Industries such as aerospace and telecommunications.

Besides clashing in the courts, the competitors also are waging a trade war. On Akzo's behalf the European Commission has accused the US of unfair discrimination against the Dutch company, under the free-trade rules of the General Agreement on Tariffs and Trade, for banning imports of TWARON.

In 1986 the US International Trade Commission forbade TWARON imports for five years on the grounds that the fibre infringed Du Pont's patents.

EC hopeful on raising car sales to Japan

By Bob Vincent in Tokyo

THE European Community believes it has made progress in negotiations with Japanese Government officials which could lift sales of European cars in Japan.

"We started on motor cars with a request for some 20 issues. One nine of these we received a yes answer, on eight, no, and on the others, wait and see," Mr Heinrich von Melike, the EC director for industry, said after a week of talks in Tokyo.

Long wrangle

The most positive is an agreement, in principle, that Japan will accept individually inspecting foreign cars to accepting the manufacturers' system of inspection on a case-by-case study.

He hoped that EC car manufacturers would see this as the EC's opportunity to dent Japan's growing trade surplus with the Community.

The issue of car imports to Japan has been the subject of a protracted wrangle between the EC and Tokyo. This featured prominently in the discussions which the EC team, led by Mr von Melike, had with Japanese officials.

The EC has only about 2 per cent of the Japanese car market, although EC manufacturers sell some success at the luxury end of the market.

However, a jump of one-third in Japanese car sales to Europe in the first quarter of this year has heightened European concern over the trade imbalance.

Gave ground

The Japanese also gave ground on the question of the inspection of imports of small quantities of cars—below 1,000 vehicles a year.

Inspection may in future be made on one car in 100 instead of one in 10 if warranted by favourable test results.

Mr von Melike said that many issues still remained. More serious questions, such as Japan's car taxation, discouraged widespread marketing.

UK groups seek Chinese power orders

BY MAURICE SAMUELSON

A BRITISH consortium led by Trafalgar House and including GEC Turbines is making a strong push to build a hydro-electric power station which China is expected to order in the next 12 months and will include overseas contracts worth more than £200m.

There is also strong interest by Japanese and Italian companies in building a 1,300 MW plant which would supply cheap peak-hour electricity in the Guangdong province and Hong Kong.

French and Brazilian companies have also shown interest but UK electricity officials think China may turn to

Britain because the scheme resembles the highly successful Dinorwig power station in North Wales operated by the Central Electricity Generating Board.

The Chinese station could cost up to £400m, including the surface civil engineering work which the Chinese will carry out. The rest of the work, including the turbine generators and construction of the underground turbine hall—expected to cost more than £200m—would go overseas.

Like Dinorwig, it will be powered by water from a specially-built mountain reservoir whose contents can be rapidly dropped into underground turbines. It would reach full power in eight seconds whenever the electricity supply required rapid and massive reinforcement.

This is the function of the 1,800 MW Dinorwig plant, which played an important role during this year's record cold weather in Britain. Previously, this role was carried out by expensive gas turbines.

China wishes would be contractors to complete their proposals over the next three or four months.

Other members of the UK consortium include John Brown, Bovings, Keir, Merz and Mc-

Lellan, Standard Chartered Bank and British Electricity International, the overseas consultancy arm of the Electricity Council and CEBG.

Bovings is a leading designer of hydro turbines, which are usually manufactured by the Chesterfield-based Markham company, part of Trafalgar House. GEC would be in charge of the electrical plant, and tunnelling would be carried out by John Brown, another Trafalgar House subsidiary.

Keir would supply steel and Chartered Bank the financial package.

Offering an attractive financial package will be crucial in winning the contract.

ware in Indonesia. A State Department official said in Jakarta last year that US companies lost \$200m through the pirating of technology and other intellectual property in Indonesia in 1985.

The new Indonesian law would provide maximum five-year jail terms and fines of up to \$15,000 for violation of copyrights, patents and trademarks published abroad, the Justice Minister said.

The US earlier threatened to take away Indonesia's preferential trade status if Jakarta did not introduce a new copyright law by October.

Washington has been pressing for intellectual property protection for computer soft-

Indonesia soon to reform copyright legislation

INDONESIA WILL soon ratify a copyright law protecting foreign films, music, books, computer software and other material, Ismail Saleh, the Justice Minister, said yesterday, Reuters reports from Jakarta.

He said after a meeting with President Suharto that the government would submit the bill to parliament this month and sign it by October.

Indonesia has been under strong pressure from overseas

to reform its copyright legislation. "Piracy has been increasing remarkably," Mr Saleh said. It was discouraging creativity among Indonesian artists and inventors.

The Geneva-based International Federation of Phonographers and Videogram Producers earlier this year lodged a complaint with the European Community against Indonesian music piracy.

Indonesia is the world's

leading exporter of pirated music cassettes with annual overseas sales of 30m to 36m cassettes, according to the group.

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Caribbean cruising to tourism record

THE END of the peak winter tourist season a fortnight ago has left Caribbean resort countries expecting record volumes of visitors and increased earnings this year. The region last year entertained 8.4m stayover tourists—the first time it had topped 8m in a year. This was six per cent above 1985 volumes, while cruise ships brought another 5m visitors.

Earnings for last year are estimated at \$7.5bn and more is expected this year. The region's volume of arrivals in the first three months of this year was 13 per cent above last year.

But Caribbean hoteliers, while savouring increased occupancy levels—despite their rooms being in the world—are hard put to maintain the profitability of their properties.

Caribbean governments, many of which now see tourism as the only means of filling gaps in foreign earnings caused by depressed income from traditional commodity exports, have been promoting the

region, mainly in North America and Europe. The rapid growth in Caribbean tourism has been mainly the result of a steady performance in the US market which accounts for about 63 per cent of the region's tourists, and which grew last year by 8 per cent.

It was not only intensive promotion, however, which attracted more visitors to the islands. According to the Caribbean Tourism Research and Development Centre, based in Barbados, the growth in the number of US visitors "reflected continuing fears about terrorism in Europe and the Middle East."

The region has also benefited from fair performances by the economies of countries which make up the tourism market, and the advantage which stable exchange rates have given to long distance travel from Europe to dollar areas.

There is now also increased effort by Caribbean countries to exploit what is being

accepted as a potentially lucrative European market. Tourist arrivals from Europe last year grew by about 11 per cent over 1985.

"Much of this increase is due to the UK market which sent over 20 per cent more tourists to the Caribbean," the centre reported. A new assault, say administrators of tourism in the region, is being planned with two countries in mind: one is West Germany, the other Japan.

One of the problems facing hoteliers is that the region has room for about three times its volume of visitors but cannot escape the seasonal nature of the market, which makes

summer business poor. But not all the resort countries gained from the increases last year. While Puerto Rico, for example, recorded growth of 12 per cent, Jamaica 16.1 per cent, Aruba experienced a 12.4 per cent decline. The volume of arrivals in Guadeloupe fell 6.2 per cent and in Trinidad and Tobago it was down 1 per cent.

The growth in tourism was supported by continued expansion in cruise ship business in 1986, continuing a trend which began in 1985.

The two biggest Caribbean cruise destinations, the Bahamas and the US Virgin Islands, reported increases of more than 30 per cent last year, while lower but significant increases were recorded by Antigua, Barbados, Grenada and Martinique.

Despite the increase in business, the region's hotels, among the most expensive in the world, are also among the least profitable because of high operating costs.

After a study comparing Caribbean and Pacific hotel costs with the worldwide average, the Research Centre reported that Caribbean hotels, when compared with a worldwide sample, display an "extremely low level of profitability as measured by net income before fixed charges."

Despite the increase in tourist arrivals in the Caribbean in 1986, room occupancy rates were generally lower than in 1985. The centre explained that Caribbean hotels experienced low profitability despite registering revenues about a third higher than the worldwide average.

Average costs per available room for food and beverage in the Caribbean are 40 per cent higher than the average for the world. The centre explained, however, that the profitability of Caribbean hotels was affected by the "seasonality" of tourism, which meant that occupancy rates were high in the winter, but low in the summer.

ECGD to offer Nigeria \$500m short-term cover

BY PETER MONTAGNON, WORLD TRADE EDITOR

BRITAIN'S Export Credits Guarantee Department has set a figure of some \$500m on the amount of short-term export credit cover it is prepared to offer to Nigeria after completion earlier this year of its Paris Club rescheduling.

However, further talks on Nigeria's actual requirement are needed before the new cover arrangements can take effect. These have been delayed because Nigeria has set as a first priority the completion of bilateral agreements with other official creditors on arrangements to implement the Paris Club rescheduling.

In March, the ECGD said it

was prepared to consider a gradual restoration of cover providing Nigeria continued to win the support of the International Monetary Fund for its economic stabilisation programme and offered a satisfactory level of acceptance for ECGD-insured short-term trade arrears.

The new cover figure suggested by the ECGD would mean a substantial boost for business that has recently been running at a level of about \$80m. The ECGD has also indicated its willingness to consider a special \$100m credit line to cover projects considered essential to economic recovery.

APPOINTMENTS

Hill Samuel makes changes

Mr Richard Walton is appointed managing director of HILL SAMUEL INVESTMENT SERVICES GROUP. He will have overall responsibility for financial control, Hill Samuel Life Assurance, Hill Samuel Unit Trust Managers, Hill Samuel Personal Finance and Universal Credit. Mr Derek Fitch also joins the board and becomes managing director, Hill Samuel Personal Finance and Universal Credit. Mr Geoff McEneaney is appointed to the HSIAG board and executive committee. He will continue to be chief executive of HSIAG (Asia) and be responsible for the division's operations in Hong Kong and South East Asia. Mr Brian Quirk is appointed chairman of Hill Samuel Investment Services International. He will work for both HSIAG and Hill Samuel and Co and provide assistance in international development and special projects. Until recently he was managing director of Hill Samuel and Co. Mr David Pritchard is made HSIAG chief executive with responsibility for direct and intermediary sales, sales administration and training. Mr John Fairbairn becomes sales director. Hill Samuel Investment Services. Mr David Stewart has been appointed regional director, south western division. Mr Jeremy Haythornthwaite has been appointed regional director, northern division. Mr Norman Leask a director, HSPAS, responsible for the London division; Mr John Featherstone a director, HSPAS, responsible for the south and western division; and Mr John Sayers a director, HSPAS, responsible for the Midlands and north division.

The QUARTO GROUP INC has appointed Mr Michael Housley as chief financial officer. He joins from Deloitte Haskins and Sells' corporate finance department.

Mr John Skelton has become a partner in MACFARLANES, which he joins from Withers, where he was a partner.

WILTSHIRE CONSTRUCTION has appointed Mr Brian Skell as managing director. He is director responsible for all work carried out in the London area by French Rier.

NETWORK SYSTEMS new UK managing director is Mr Malcolm Hopping. He joins from Storage Technology Corp where he was sales and marketing director.

SHANDWICK has appointed Mr Charles Jones as president and chief executive officer of Shandwick North America Inc. He is managing director of First Funding Corporation which is

based in Stamford, Connecticut, and was previously president of financial consultants, Alexander Banker and Jones. First Funding Corp is Shandwick's investment banker.

Mr Patrick Kingsmill has been appointed to the main board of the PST GROUP as financial director, and Mr Richard Holman is joining as group financial controller.

Contracts director of SGB, Mr Bryan McCann, has been appointed deputy managing director.

Mr Peter Gould has been appointed joint managing director of WHITECROFT, sharing the post with Mr Tom Westhead by who remains chairman. Mr Graham McCardell, as finance director, now has full responsibility for group finance.

WILCOMATIC GROUP car wash marketer, has appointed Mr Steven Phillips as managing director of its new Wilcomatic Conveyor Wash System.

ANDAMAN RESOURCES, which is involved in mineral exploration in Northern Ireland, Ireland and Spain, has appointed Mr John Goodger to the board. He is a director of Cambridge Capital. Mr Peter Caristan, a director of Andaman, becomes company secretary.

Mr Philip Page has been made a director of MARSH AND MCLENNAN GROUP ASSOCIATES.

CONTROL SECURITIES has appointed Mr John Hewitt as finance director and company secretary. He joins from Benchmark Group where he was group company secretary and also lending director of Benchmark Trust, its banking subsidiary.

Mr T. J. Lowe, technical director of London Buses, has been appointed chief E&M engineer by KENNEDY HENDERSON.

Mr Arnold Smith has become assistant director of SRI's Cambridge Computer Science Research Centre. He joins from Schlumberger Cambridge Research, where he was head of computing technology. Mr Charles Stancu has been appointed director of SRI's Business Intelligence Centre in Europe. He was European marketing director of Data Resources Inc. Mr Pat Healey has joined SRI's Management Systems Centre in Croydon as a consultant, specialising in distribution and transportation. He joins from Schlumberger in Houston, Texas, where he was distribution and customer service manager.

RADIO RENTALS has appointed Mr Brian Smith as financial director. He succeeds

Mr Paul Stevens who has become systems director, a new post. Mr Smith was group finance director of Dana Europe.

THE SOCIETY OF COMPANY AND COMMERCIAL ACCOUNTANTS has elected as president Mr R. P. Spooner; and as vice-president Mr D. E. Evans.

CENTURY OILS GROUP has appointed to the board Mr A. E. Ware, Century Oils UK operations director, and Mr H. A. Mayes, president of the group's US company.

Mr Bernard Fisher has been named as ANSA SOFTWARE's first European managing director. He joins from Ashton-Tate where he was managing director of its UK operation.

Mr Bernard Roeder, Nationwide Building Society's general manager responsible for housing, has become president of the CHARTERED BUILDING SOCIETIES INSTITUTE.

TAYLOR YOUNG INVESTMENT MANAGEMENT has appointed as directors, Mr Brian L. Murgatroyd and Mr Richard D. Waring. Mr Murgatroyd and Mr Waring are directors of Treasury Holdings, Derby Trust and Brycourt Unit Trust Management. Mr Murgatroyd is also a director of Terra Nova Insurance.

Mr David Webb has been appointed a director of GRANVILLE INVESTMENT MANAGEMENT.

One of the youngest directors to be appointed in the whole of the Building Society movement has joined the board of the BARNESLEY BUILDING SOCIETY. Aged 34, Mr David A. Roebuck became general manager of the society three years ago.

AETNA INTERNATIONAL (UK) has appointed Mr Rod Dumeau as unit trust sales director. He joins from County Unit Trusts where he was a director responsible for business development and sales. Mr Tom Heron has been appointed company secretary of Aetna International (UK). He replaces Mr Peter Walker who is now director of administration for Aetna's offshore companies and managing director of the Tyndall named administration company, shortly to be named Aetna International Managers (Guernsey). Mr Heron was company secretary/financial director of Kurvers International. Mr Richard Overton becomes managing director of Aetna Multinational Asset Management. He was a director of Midland Montagu Fund Managers.

Mr Nigel Cason has been promoted to finance director of

TUNSTALL GROUP. He joined Tunstall Telecom as finance director in August 1986.

Mr Tom J. Gibson has been appointed chief executive officer for the UK of THE BRITISH CAR AUCTION GROUP. He joined British Car Auctions Ltd as managing director in June 1984 and was appointed a main board director in January 1985.

Mr Brian Garner has been appointed to the main board of BENTON CHEMICALS INTERNATIONAL. He is chairman of the metal finishing division.

Mr Roger Cook has joined the board of GIBBS HARTLEY COOPER, the Lloyd's Insurance Brokers, with special responsibilities for developing international construction and political risk business. Mr Christopher Waite has joined as a director of the international division and Miss Gina Fitzgerald joins as a director of the political risks division. All three were previously employed by Citicorp Insurance Brokers.

From June 1 the boards of C. E. HEATH (AVIATION) and C. E. HEATH (AVIATION REINSURANCE BROKING) have been reconstituted as follows: At C. E. Heath (Aviation) Mr C. J. T. Stewart is chairman, Mr M. H. Hughes managing director, Mr A. R. Aubrey, Mr F. K. Boyes, Mr A. R. Bryant, Mr G. M. Chichester, Mr M. J. Jerome, Mr R. F. Lyles, Mr R. P. Marsh, Mr R. J. Mickiewicz, Mr J. S. Perry, Mr T. J. Foulds, and Mr N. W. Weyman, directors.

The C. E. Heath (Aviation Reinsurance Broking) board is as follows: Mr C. J. T. Stewart, chairman, Mr M. H. Hughes, managing director, Mr P. K. Boyes, Mr P. J. Loan, Mr T. Howard, Mr J. S. Perry, Mr M. J. Jerome and Mr T. S. Foulds, directors.

Mr Austin Morrell has been appointed sales director - UK, ISC SYSTEMS. He was sales manager.

STEEL BURRELL JONES has appointed Mr B. J. Bell and Mr C. A. S. Riffell as directors.

SIDCON, Combustion Engineering's specialist in process automation, has appointed Mr Jeremy Tyrrell to head the UK operation. He is vice president of marketing for Sidcon Inc.

JFC LILLEY has appointed Mr Jim McNeill as group financial controller. He joins from Distillers where he was group treasurer.

Two senior executives of BRIDGTON ESTATE have been appointed assistant directors: Mr Michael Spurr, (property); and Mr Steven A. Owen (finance).

Mr R. P. Highmore, Mr R. W. T. Moorhead and Mr M. J. Higgs will be the partners of RADCLIFFES & CO on July 1.

MODERN BANKING
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Bayerische Hypothek- und Wechsel-Bank posted another strong year in 1986. Group assets advanced from DM 112.6 billion to DM 120.4 billion, and net earnings - which improved in nearly all sectors of activity - rose 8% to DM 238.6 million. Total assets of the parent bank grew by 8.3% to DM 81.7 billion. Net profit was up 9.3%.

The year 1986 also featured a notable increase in group equity capital of some DM 630 million to DM 3.3 billion. Risk provisions were again considerable, and investments in personnel and technical facilities were stepped up. A dividend of DM 12.50 (25%) was maintained.

Hypo-Bank's London and New York branches, its representative offices, and its subsidiaries abroad contributed substantially to the year's good performance. In its 15th year, HYPOBANK INTERNATIONAL S.A., Luxembourg, increased both interest and fee income, and further strengthened its private banking services.

With Southern Germany's largest branch network and presence in key world markets, Hypo-Bank's services span the globe. For the 1986 Annual Report, contact our International Department, Theaterstrasse 11, D-8000 Munich 2. Telephone: (89) 2366-1, Telex: 5286 535, SWIFT: HYPO DE MM.

Highlights of our consolidated Balance Sheet for 1986

	in million DM
Total assets consolidated	120,366
(Total assets parent company)	81,704
Total loans	95,598
General banking	30,010
Mortgage banking	65,588
Total deposits and long-term liabilities	114,902
General banking	51,067
Mortgage banking	63,835
Shareholders' equity	3,310



On display at the Paris Airshow, June 12th-21st, will be the British Aerospace 125, the world's best selling mid-size business jet. Sales have now reached 660 aircraft of which 80% have been for export, earning more than \$1,200 million for Britain. The bulk of these orders have been in the highly competitive North American market. The latest version the 125-800, can seat eight passengers in comfort and can fly non stop coast-to-coast across America. In 1986 it captured 41% of its market.



The British Aerospace 125-800 Business Jet
We are offering a number of litho prints of this photograph. A copy may be obtained by writing to: Mailing Office, British Aerospace, Weybridge KT13 0SF, England.

TECHNOLOGY

Why ideas flow slowly from the realm of defence

FAIRLEY ENGINEERING, in 1972, licensed a quick bridge-building technology developed by Ministry of Defence scientists. It proved a world-beater, selling to 33 countries and earning Fairley two Queen's Awards for exporting.

By 1976, royalties paid to the Ministry exceeded research and development costs. Today they exceed £5m — more than any other Defence Ministry invention has earned.

Now Defence Ministry scientists are thinking of switching this technology from weldable light alloy to a Meccano-like system of carbon fibre composite structures. The target is to cut costs to one fifth of what aerospace companies are willing to pay for such composites, while sacrificing only 10 per cent in engineering performance. It will take at least 10 years to prove a saleable system, they say.

They asked Fairley to participate, but Fairley said no. "Their attitude was, you're doing it so well and we're getting it free," says Mr Colin Evans, deputy director of the Royal Armaments Research and Development Establishment (RARDE), whose laboratories at Christchurch develop the army's bridging systems.

Ministry scientists believe the experience with Fairley encapsulates much of the underlying cause of animosity over the size of Britain's defence R and D budget. To them, Fairley seems typical of thousands of British engineering companies which are heavily dependent on Defence Ministry R and D, but have little stomach for the financial risks of doing it at their own expense.

This year, defence is expected to account for 55 per cent of all government-funded R and D in Britain. This annoys the academic community, which seems to have scant sympathy

David Fishlock looks at the commercial worth of heavy British spending on military research

with defence objectives. For example, graduates often stipulate "no defence work" as job application forms, says Dr Cyril Hissam, GEC's research director and a former MoD scientist. Academics see the money spent on defence R and D as public cash which they could do with to keep their work internationally competitive as the cost of civil-sector research tools soars. This year, of a total British defence R and D budget of £2.75bn, about £800m will be devoted to the underlying science, more than the whole budget of the Science and Engineering Research Council, which underpins university research in the physical sciences.

The defence industry, however, has no doubt that Britain must continue to spend heavily on defence R and D to sustain both its own systems and growing export earnings, forecast to rise by 70 per cent this year to about £5bn. But others suggest the price Britain is paying for these earnings is high in terms of R and D compared with other high technologies, with good export records, such as pharmaceuticals. Mr Charles Reece, ICI's research director, has increasingly questioned whether, by normal commercial criteria, Britain's defence industry really pays its way.

Some critics argue that too much Defence Ministry-funded R and D is being exploited by overseas rather than UK companies.

The ministry's growing con-

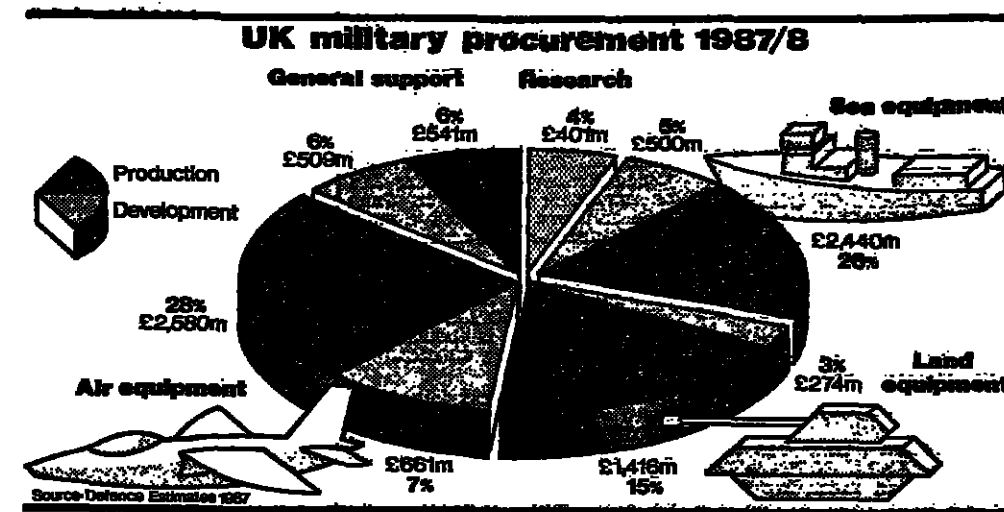
cern was expressed in last month's defence estimates, which said the Government shares the underlying concern of those who fear that necessary investment in R and D may crowd out valuable investment in the civil sector.

Mr Reece is chairman of a working party, set up in March by the Cabinet Office's technology advisers, to investigate the defence R and D budget and how it might contribute more fruitfully to the economy. The Advisory Council on Applied Research and Development (Acad) expects to report in the autumn of next year. Mr Reece expects hostility from UK companies heavily dependent on MoD funds for R and D. But he believes his team must probe the commercial case more deeply than has been the case with MoD research programmes.

All told, Defence Ministry research establishments are spending about £800m annually in-house. During the 1980s, the MoD has made major efforts to expedite transfer of technology into British industry.

During the same period, its research establishments have been reorganised. They now number five instead of 12 and the Royal Armaments and the Royal Signals and Radar establishments (RARDE and RSRE) are in the vanguard of technology transfer experiments. For four years, until retirement last December, the man in control was Sir Colin Fielding, who since became a member of Acad.

Sir Colin points out that the review is aimed at not just the 15 primary defence contractors but the MoD's 10,000 manufacturing sub-contractors, many of which do no R and D of their own. Yet at the subsystem level it is becoming increasingly difficult to distinguish between civil and military technology and



capability, for example in advanced electronics and information technology.

According to him the central issue is how to get world-class military research centres, like RARDE and RSRE, to communicate freely with an industrial base which is neither very research-conscious nor technologically sophisticated.

Many companies, he says, would like to use defence technology but simply do not know how. All too often they fail to understand that it never comes ready-made, but needs what he calls "added-value research" to tune it for a particular civil market. "Added-value research" is time-consuming, needs a lot of luck as well as money and no-one has yet discovered a simple formula for success.

The RSRE, based at Malvern in Worcestershire, has been one of Britain's most fertile research centres for many years. This year it shared two Queen's Awards for innovation with industrial partners, both GEC subsidiaries.

It has also suffered the frustration of seeing a major invention in low-power liquid crystal displays, made in the 1970s, picked up and exploited worldwide by Japan. The MoD has no use for small displays and it was left to Japanese com-

panies to show Britain how they could be mass-produced cheaply for consumer products.

"Almost anything you touch in the electronics sector we've been involved with in the past 20 years," asserts Mr Brian Collins, RSRE's deputy director responsible for applied physics. He says all the technical directors of the leading UK electronics companies visit RSRE at least once a year. But these companies, far from wishing to boast about their associations with such a laboratory, "would rather avoid talking about it if possible," he says.

Mr Nigel Hughes, RSRE's director, says wryly that frequent press references to a "top secret laboratory" scare off potential collaborators.

Nevertheless, RSRE has signed 25 confidential agreements with industry addressees to transfer 35 British firms to second researchers to Royal Signals laboratories. Mr Collins believes this is a promising way to improve technology transfer. But Mr John Fairclough, the Government's chief scientific adviser and a critic of the high proportion of British research funded by the MoD, says he would be more impressed if Defence Ministry laboratories were seconding staff to industry. In fact, defence scientists — except for a few at the top —

Television begins to enlarge its image

AS TELEVISION sweeps aside traditional processes for displaying or recording pictures — becoming the universal standard to which other image systems must relate — one obstacle to this relentless progress remains. Small may be beautiful, but a world brought up on large cinema screens still has reservations about watching Tom Thumbe-sized actors.

There are good optical reasons for viewers preferring larger pictures. Cameras record the subject from a position which sees the perspective — the relative position and size of objects. In an ideal world, the viewpoint in order to experience the perspective in a similar way. But to do this with an average television set would mean moving the viewing distance uncomfortably close to the screen.

The alternative is, of course, a much bigger screen. And for business applications, where television viewing by large groups is often required, the need for bigger screens is self-evident. But larger sets are difficult and costly to manufacture. The cathode ray tubes

FILM AND VIDEO

by John Chubbuck

(CRTs) contain a vacuum and larger screens require stronger glass to withstand atmospheric pressure and physical damage (indeed an implosion can occur).

The industry's answer has been the development of television projection systems — using lenses to throw enlarged pictures from the television tube on to a screen. For such systems to achieve satisfactory standards of brightness, however, the small tube must provide exceptional light output. One popular way of doing this is to use three CRTs instead of one. Colour images are separated into red, green and blue, one to each tube, and recombined in exact registration on projection.

Three-tube systems are effectively multiplying the available light output. By using special optics — even water coolants so that the tubes can be "driven" harder — results can be very acceptable.

High gain screens are sometimes used with such systems; that is, screens which reflect a maximum amount of light in a narrow forward arc, but at the expense of brightness at more oblique audience positions.

Numerous three-tube systems now compete for the television or video projector market — such as Barco, Hi-Beam and Sony for professional users and Mitsubishi, Philips and Panasonic for the home. Projection consoles, for consumer or commercial situations. Prices range from £3,000 to £20,000 (the latter with higher resolution for displaying computer graphics).

Even more sophisticated systems are available with price tags running into six figures. The most widely used, popular in the equipment rental business, is the General Electric (GE) light valve system. Like the even more expensive Swiss-

made Eidophor (the Rolls-Royce of video projectors), the GE relies on the modulation of a powerful light source by interposing a light valve in its path. The light valve contains a volatile fluid which is scanned by an electron gun fed by the television signal. The modulated electronics cause variable deformations in the surface of the fluid, which in turn refract the light and regulate its output as it scans the screen.

The GE and the Eidophor can yield remarkable pictures in cinema-sized dimensions. Film makers still find fault with the quality, especially as standard television pictures have neither the resolution nor the contrast range of film. But for most purposes, which is a huge change of 1,000 a day of more can be justified, light valve projectors offer large audiences very acceptable pictures.

In search of better quality, UK-based Dwight Cavendish has developed a projection system which uses laser illumination. In this, the television signal modulates three lasers — red, green and blue — which fall on to the screen via a rotating polygon. That sweeps each laser beam across the screen in the same configuration as an electron scanning in a television tube.

The advantages claimed for laser projection are sharper pictures right into the corners of the screen, higher fidelity colour and the elimination of focus — the parallel laser beams require no optical system to form image points.

At present, laser projection cannot match the GE and Eidophor for screen brightness. So the choice is sometimes between sharper pictures and brighter ones — a horse-for-course situation, which is why one of Britain's leading equipment hire companies, Samuelson, offers customers a choice. It also offers for rent double-stacked Barco projectors which, accurately registered, can double screen brightness.

The electronics industry is working vigorously to develop better systems. A number of Japanese companies, in particular, are also introducing video projectors in which the key component is a liquid crystal display (LCD). Although LCDs cannot yet provide the large television screen, which hangs on the living room wall like a picture, they can be employed as high resolution — interposed between a powerful light source to modulate it, rather like the Eidophor or GE. Prototypes now exist and may become available commercially in the next 12 months.

Significant growth in the video projector market is expected for computer displays. But if video projection development can begin to equal the quality of film projection especially when fed by high definition television, the most dramatic changes could occur in the cinema. Multi-screen complexes using only video can operate from a small control room, with one operator, receiving their movies by satellite or microwave link instead of by delivery van. Cinema chains will then no longer require multiple copies of expensive 35 mm prints.

It will happen. The only question is when?

In 1826, George IV declared Buckingham Palace be re-designed, for be considered it the proper location to conduct affairs of state, official banquets and become the focal point of a vast empire.

Just a carriage turn away from the Palace, was the site of the future

St. James Court, which is now one of the most luxurious hotels in Europe.

As well as being one of the more peaceful settings in London, St. James Court carries the prestige of the definitive business venue.

DESIGNED IN 1826 FOR THE OFFICIAL BUSINESS OF THE HEAD OF STATE.

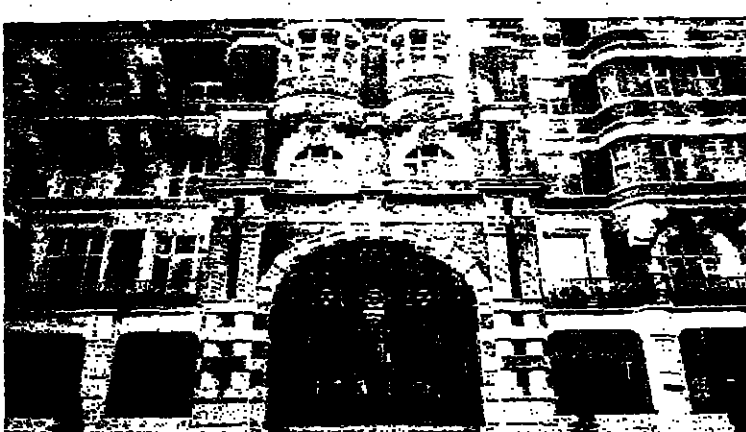
With a business centre, conference suites and meeting rooms designed specifically for that purpose, as well as 2 haute-cuisine restaurants and 100 self-contained apartments for longer stays.

Restoring and creating London's most elegant hotel though, has taken a team of over 900 people and over 2 years intensive work.

The 17th century portraits, polished mahogany pillars and coffered ceilings won't be seen anywhere else. Nor will the courtyard fountain. Tradition has it, that it was donated by Queen Victoria.

And from where else in London can you view the Palaces of both Buckingham and Westminster from the same room? Most important of all though, is something that you could be here. can't be seen. And that is our exacting standards.

150 years ago George the IV's standards made his court the finest in Europe, and they are the yardstick by which St. James Court can be judged. Quite simply, the best place to stay (Next to Buckingham Palace).



DESIGNED IN 1886 FOR THE OFFICIAL BUSINESS OF HEADS OF INDUSTRY.



NOTICE OF REDEMPTION AND PURCHASE

To the Holders of KINGDOM OF SWEDEN

Floating Rate Notes Due 2005 and 3/16 per cent Income Rights Due 1990

NOTICE IS HEREBY GIVEN to the holders of the outstanding Floating Rate Notes Due 2005 of the Kingdom of Sweden that, pursuant to the provisions of the Fiscal Agency Agreement dated January 10, 1985 and the Terms and Conditions of the Notes, the Kingdom of Sweden intends to redeem on July 10, 1987 all of its outstanding Notes, at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the redemption date and pursuant to the Terms and Conditions of the Income Rights, the Kingdom of Sweden intends to purchase all of the outstanding Income Rights at the Call Price of \$39.22.

Payments will be made on and after July 10, 1987 against presentation and surrender of Bearers' Notes with coupons due January 1988 and subsequent presentation and surrender of Bearer's Notes and regulations, either (a) at the office of the Fiscal Agent in New York City, or (b) at the main offices of Morgan Guaranty Trust Company of New York in Brussels, Frankfurt, London, Main and London or Kreditbank S.A. Luxembourg or Swiss Bank Corporation in Basel.

Purchase of all Income Rights at the Call Price will be paid by the Kingdom of Sweden upon surrender of each Participant's interest in the Global Certificate and the receipt of certificates of Beneficial ownership from the account holders, or agents for the account holders. Payments at the office of any paying agent outside of the United States will be made by check drawn on, or transfer to a United States dollar account with a bank in the Borough of Manhattan, City and State of New York. Any payment made by transfer to an account maintained by Internal Revenue Service (IRS) and to backup withholding at a rate of 20% if payee not certifying under penalties of perjury that the payee is not a United States person or an executed (employer identification number or social security number, as appropriate). These holders who are required to provide their correct taxpayer identification number on Internal Revenue Service Form W-9 and who fail to do so may also be subject to a penalty of \$50. Please therefore provide the appropriate certification when presenting your securities for payment.

Coupons due July 1987 should be detached and collected in the usual manner. From and after July 10, 1987 the Notes will no longer be outstanding and interest thereon shall cease to accrue and Fixed Payments in respect of the Income Rights shall cease to be paid.

KINGDOM OF SWEDEN
By: Morgan Guaranty Trust Company
OF NEW YORK, Fiscal Agent

Dated: June 9, 1987

**I'm a construction worker
building at home and abroad.
Last year 27% of my
company's profits came
from construction work.**



UK NEWS

Cut in industry's costs eases inflation pressure

BY JANET BUSH

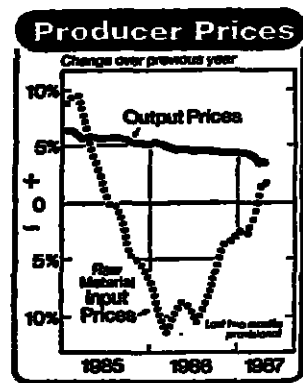
THE GOVERNMENT'S prediction that inflation will end this year below 4 per cent was given some support by figures yesterday showing a fall in manufacturing industry's input prices last month and stable factory gate prices.

The Department of Trade and Industry (DTI) said its index of fuel and raw materials costs fell by 0.2 per cent in May compared with the previous month following April's rise of 0.4 per cent compared with March.

The drop was because of the strength of the pound against other leading currencies and weaker energy prices. There was also some seasonal effect - on the DTI's seasonally adjusted index, prices rose by 0.2 per cent between April and May.

Manufacturers' factory gate prices rose 0.3 per cent in May compared with the previous month. This was smaller than the 0.5 per cent increase between March and April.

The rise in output prices has been



slowing gradually for some months, partly reflecting falls in input prices. In January the increase in the price index for home sales of manufactured products measured over a 12-month period was 4.3 per cent. In both April and May the 12-month increase was 3.5 per cent.

Taken together, the figures confirm inflationary pressures in the economy are quite subdued, and the apparent stability of output prices

at a time of rising productivity bodes well for manufacturing industry's competitiveness in export markets.

Respondents to the Confederation of British Industry's May Monthly Trends Enquiry reported that average prices were expected to remain moderate over the next four months.

The Retail Prices Index for May is due to be published on Friday, the day after the UK general election. The annual inflation rate is expected to have fallen to about 3.8 per cent from 4.2 per cent in April as the effect of mortgage rate cuts feeds through.

Mr Nigel Lawson, the Chancellor of the Exchequer, last month revised his budget prediction that inflation would peak at just above 4.5 per cent in the summer, before falling back to about 4 per cent by the end of the year.

Now he expects that the peak will not exceed 4.5 per cent and end-year inflation should be below 4 per cent.

Jobless trend stabilising, Page 12

BBC TV in Europe 'live' by satellite

By Raymond Snoddy

THE BBC has begun delivering eight hours a day of BBC-1 programmes live to Europe by satellite for the first time.

The service is being transmitted by the Intelsat V satellite to the Hybridnet cable system in Denmark which is run by KTAS, the Danish telephone organisation.

The possibility of cable television networks in Norway, Sweden and West Germany also taking the BBC service from the satellite is being examined.

The satellite time is being paid for by KTAS. BBC Enterprises, the commercial arm of the BBC, receives a fee for each subscriber who can receive the service.

By the end of the year Hybridnet expects about 150,000 homes to be connected to the cable system.

The main barrier standing in the way of satellite distribution to other European countries is negotiations over programme rights. When a bought-in film is shown on BBC-1, for example, which cannot be relayed to Denmark, the intention is to fill in the gap with programmes from BBC-2.

Air and sea traffic hit by civil service strike

BY PHILIP BASSETT, LABOUR EDITOR

STRIKE ACTION by civil servants in the UK yesterday closed employment and social security offices, delayed export cargoes trying to leave through airports and disrupted half of Britain's domestic air traffic.

The Government claimed last night, however, that the number of civil servants taking part in the first of two days of national strikes over pay was sharply down on the number who had joined earlier regional stoppages.

Leaders of the unions involved - the Civil and Public Services Association and the Society of Civil and Public Servants - disagreed sharply with the Government over support for the dispute. They claimed that about 75 per cent of their 230,000 members had taken part in the strike.

The Treasury said the total was much lower, saying that only about 17,500, or roughly 45 per cent of the union membership, had taken part.

On the Treasury's figures, this is close to 20 per cent less than the 120,000 who had joined earlier regional strikes as part of the unions' campaign of industrial action.

against the Government's pay offer averaging 4.6 per cent.

Mr Kenneth Clarke, Paymaster General, said that the CPSA "must be under the impression there is a Labour Government, believing they can get money paid out on the eve of a general election."

Union leaders rejected the charge that their action was damaging Labour's electoral chances. Mr John Ellis, CPSA general secretary, said: "Our dispute is in every way an industrial dispute over pay and not a political strike," and Mr Leslie Christie, SCPS general secretary, said: "I do not accept that the fact that the Civil Service is in dispute with their employer, which is the current Government, is harmful to the Labour Party."

Union leaders believe that support for the action will be greater today as more members, unable to afford more than one day's strike, join the action, but Mr Ellis told a London rally that the unions' memberships were "not ready to come out on an indefinite strike. They cannot afford it."

Among the main effects of the strike were:

● The Civil Aviation Authority said that only half Britain's normal air traffic was flying because of action by air traffic control assistants although that ended last night. London's Heathrow airport was worst affected, and British Airways said many of its domestic services had been hit although intercontinental flights were unaffected.

● Cargo traffic at Dover and Harwich was delayed by action by Customs staff, and honesty boxes were installed for passengers to make payments on car ferries.

● More than 450 of 481 local welfare benefit offices were closed to the public, as were 512 unemployment benefit offices and 230 Jobcentres. Benefit computers were affected, which could hit postal delivery of payments.

● The Government's GCHQ communications centre in Cheltenham defied the union ban there by joining the strike and now face disciplinary action.

The unions said it was a good response and said: "We hope the Government will take note - and if not the present Government, then whoever is elected in June 11."

Lucas set to agree deal with Corrello

LUCAS ELECTRICAL, the loss-making motor components subsidiary of Lucas Industries, is close to a deal to sell a majority stake in its lighting division, employing 1,500 workers at Cannock, West Midlands, to Fausto Corrello, its 40-per-cent-owned Italian associate, Arthur Smith writes.

Talks are also well advanced with Magneti Marelli, a subsidiary of Fiat of Italy, which has emerged as front-runner to purchase a stake in Lucas's Birmingham-based starters and alternators operation which employs 1,700 people.

Lucas said talks were also continuing with other companies including Valeo of France, Bosch of West Germany and Nippondenso of Japan.

Lucas said that any deals would be aimed at seeking wider European markets.

Sir Godfrey Messervy, Lucas chairman, said in March while announcing group pre-tax profits of £40m for the six months to January 31 that any activities which could not be made profitable and internationally competitive would be put into joint ventures, sold, or in the last resort, closed.

The group made provisions of about £30m for planned closures, including the rundown, already announced, of its Birmingham headquarters, in its last full financial year to July 1988.

Fausto Corrello is a major supplier of car lights to Fiat and to Ford in West Germany. Corrello is thought to be looking for an expansion into UK manufacturing as part of an attack on European markets.

Lucas's Cannock factory supplies Austin Rover, Ford and Jaguar in the UK and exports direct to General Motors in the US. Its profitability has been hit by production problems attributed by Lucas to the introduction of new manufacturing methods and standards.

The Lucas starters and alternators operation is three years into a five-year £15m investment programme, backed by a government grant.

Magneti Marelli has 20,000 employees at 60 manufacturing centres.

CRITICISM of safety standards was expressed by Sir Justice Sheen, chairman of the public inquiry into the Herald of Free Enterprise ferry disaster, who said he was surprised at the failure of the Transport Department to implement safety recommendations made after a previous ferry accident in 1982.

He told the inquiry: "I don't understand the attitude. I can understand the Department wanting to make sure that British ships do not fall behind international standards, but I cannot understand the reluctance to lead the field on safety."

SHAREHOLDERS in British Gas who miss today's 3pm deadline for payment of the second 45p instalment on their shares are likely to be treated leniently and permitted to make a late payment.

EMPLOYEES in Rolls-Royce have extensively taken up the offer of shares in the recently privatised aero engine company.

The high level of take-up is likely to be taken by the Conservative Party as further evidence of the popularity among employees of offering them shares for sale in their own enterprises.

THE National Union of Mine-workers policy making annual conference, which meets next month, seems set to oppose every element of British Coal's emerging strategy to change working practices, production incentive payments and shift patterns.

THE NUM is worried that moves toward multi-skilling among craftsmen will lead to job losses. The conference will also debate a call for the union to oppose the contracting out of any tasks that could be done by NUM members.

TURNER & NEWALL, which won control of the AE engineering group after a protracted bid battle last year, is pumping an extra £2.3m into two former AE subsidiaries for exports-based expansion.

HOPES that a survival plan for General Motors' troubled plant at Luton will be agreed rose last night after trade unions and representatives from the joint venture company which plans to take over the plant had resumed negotiations.

Consumer credit surge continues

BY RALPH ATKINS

THE SURGE in consumer credit showed no sign of abating in April, according to figures published by the Department of Trade and Industry yesterday.

A total of £3.1bn in new credit was provided during the month by finance houses, retailers and credit card companies. This is a slight fall on March's figure of £3.2bn, but the department believes the trend is still upwards.

Total credit advanced in the three months from February to April was 14 per cent higher than in the previous three months.

The surge reflects rising real incomes which have boosted retail

sales. Consumers are also taking out credit in anticipation of a further increase in their spending power from tax cuts announced in the budget and falling interest rates.

The trend rise is expected to continue over the next few months unless a change in government leads to higher interest rates and increased taxes.

The surge in consumer credit is a matter of official concern, not so much because of any inflationary implications but on prudential grounds. The Bank of England's latest bulletin expressed worry about some borrowers becoming overextended.

April's figures were distorted by the late Easter - a factor not accounted for in the seasonal adjustments the department makes. Easter fell in March in 1986, and Easter fell in March in 1987, and recorded credit advances were recorded then. The effect was noted when Easter fell in April this year.

At the end of April credit outstanding was £25.3m compared with £24.8m at the end of March.

Lending by finance houses increased by 20 per cent between the three months to April and the previous three months. Advances on bank credit cards increased by 14 per cent. Retailers advanced 1 per cent more.

Denmark is the fourth European country to carry BBC transmissions on cable networks. However, in the case of Belgium, the Netherlands and Paris Cable in the French capital the programmes have in the past been picked up from transmitters in the south of England and re-broadcast on cable networks.

Some BBC programmes are also distributed all over Western Europe as part of the schedules of Super Channel, the British satellite channel set up by British TV companies and the Virgin Group.

Bankers' obligations 'override actions by overseas states'

BY RAYMOND HUGHES, LAW COURTS CORRESPONDENT

POLITICAL action by overseas governments should not be allowed to interfere with the obligations of bankers in the City of London, the High Court in London was told yesterday.

Mr Peter Cresswell QC said, "The writ of the United States does not run in this country". He was opening a claim by a Libyan bank for repayment of money locked in the London branch of Bankers Trust Company, a New York-based bank, as a result of the freeze imposed by President Ronald Reagan on Libyan assets in US banks around the world in January last year.

The case will involve the first examination by the courts of the extra-territorial powers claimed by the US and also of the workings of the Eurodollar market.

It has been brought by Libyan Arab Foreign Bank, which is wholly owned by the Libyan central bank. Its claim, with interest, amounts to about \$300m.

Bankers Trust contends that it

cannot repay the money without breaking US law.

Mr Cresswell told Mr Justice Staughton that, when the Reagan freeze was imposed, Libyan Arab Foreign Bank had a substantial dollar deposit account with Bankers Trust in London.

It was an essential feature of Bankers Trust's defence that all foreign currency deposits with banks in the City were repayable only in the country of the currency concerned.

The Libyan bank's case was that such deposits were governed by English law and that the bank's obligation was to repay in the City of London regardless of the currency in which the account was denominated.

Libyan Arab Foreign Bank is claiming \$313m that was in the London account when the freeze hit and \$161m which, it asserts, would have been in the account had Bankers Trust obeyed instructions for it to be transferred.

Mr Cresswell said that, knowing

that the US Government was about to take action against Libyan assets, Bankers Trust so organised matters that money that should have been transferred from the Libyans' current account in New York was still there when the freeze came into effect.

He said that damages were also claimed for Bankers Trust's failure to honour payments instructions. The failure had meant that the Libyan bank had had to make the payments from resources outside the US.

There was a document in evidence that made it "absolutely plain" that Bankers Trust had acted on the instruction of the US Federal Reserve Bank and/or the US Treasury, Mr Cresswell said.

Libyan Arab Foreign Bank also alleged an "unauthorised and concealed" arrangement by which Bankers Trust reduced the amount of interest paid to the Libyan bank.

The hearing, expected to last four weeks, continues today.

Disciplinary action follows Liffe probe

BY STEPHEN FIDLER

AN INVESTIGATING panel of the London International Financial Futures Exchange has imposed penalties on about 12 individuals and firms in the most serious disciplinary breach yet discovered in the exchange's nearly five-year history.

The hearings were thought to centre on pre-agreed trades transacted on the exchange floor as part of a tax avoidance scheme. Under Liffe rules, all trades must be shown to the market and not agreed beforehand.

The exchange will publish the first of its disciplinary findings to date, when it posts three notices on the floor. More serious penalties, involving possible suspensions of greater than seven days, must be referred to the exchange's Membership and Rules Committee, which meets later in the week.

Slightly more than half of those penalised are understood to be appealing against the panel's decisions to the Liffe board, which meets within the next two weeks. The findings will not be made public until after the board has considered the cases.

Among those under investigation was the UK arm of Cargill, the US commodity trading group, and Mr Keith Catchpole, a senior floor trader

who left Cargill in January after the probe was announced.

There has been no involvement by the Bank of England, the Department of Trade and Industry or Inland Revenue in the investigation of possible rule breaches although the exchange will make the necessary papers available to them if required.

The disciplinary panel was headed by Mr David Burton, of S.G. Warburg, the merchant bank, who is deputy chairman of Liffe. Its other members were Mr Michael Philip of Goldman Sachs and Mr Alistair Buchanan of Morgan Grenfell.

Volume on Liffe averaged a record 60,000 futures and options contracts a day in May, 3.2 per cent up on April's figure. Total volume during the month was 1.14m contracts worth £308bn, just below April's record 1.16m, Alexander Nicoll writes.

Contracts based on long-term UK government bonds continued to dominate the exchange. In the first five months of 1987, 3.8m long gilt futures were traded, 267 per cent up on the same period of 1986. In the same period, the overall volume of the exchange expanded 91 per cent to 5.15m contracts.

Inland Revenue demand queried in High Court

FINANCIAL TIMES REPORTER

THE INLAND Revenue was accused in the High Court in London yesterday of demanding hundreds of millions of pounds it was not entitled to during the transition to a new system of taxing interest paid to investors.

The Woolwich Building Society, supported by the Leeds Permanent, claimed the Revenue was acting in an "arbitrary, unjust and irrational" way in its introduction of a new method of collecting tax payable by building societies in respect of interest paid to depositors.

The Revenue's implementation of the 1986 Building Societies (Income Tax) Regulations resulted in the Woolwich being double-taxed to the tune of an extra £16m, Mr John Gardiner, QC, told Mr Justice Nolan.

The Leeds Permanent had "suffered damage of a similar amount," Mr Gardiner said. "Many other

building societies also have an interest. Some hundreds of millions of pounds turn on this case - some hundreds of millions of pounds of additional, of double, taxation, not levied or imposed by Parliament, we say."

As far as the Woolwich was concerned, the effect was to measure the tax payable on interest paid during a year by reference to a period of 18 months.

The regulations, said Mr Gardiner, were introduced to change the system of taxing to one where interest was taxed on an "actual basis" rather than by reference to the previous year. Payments also became payable quarterly rather than annually.

The implementation of the new system had meant "double taxation" for six months and five days on the Woolwich, said Mr Gardiner. The hearing continues today.

NOTICE OF REDEMPTION
To the Holders of Bonds Representing the
7% 20 Year Loan of 1967 of

Autopistas, Concesionaria Española, S.A.

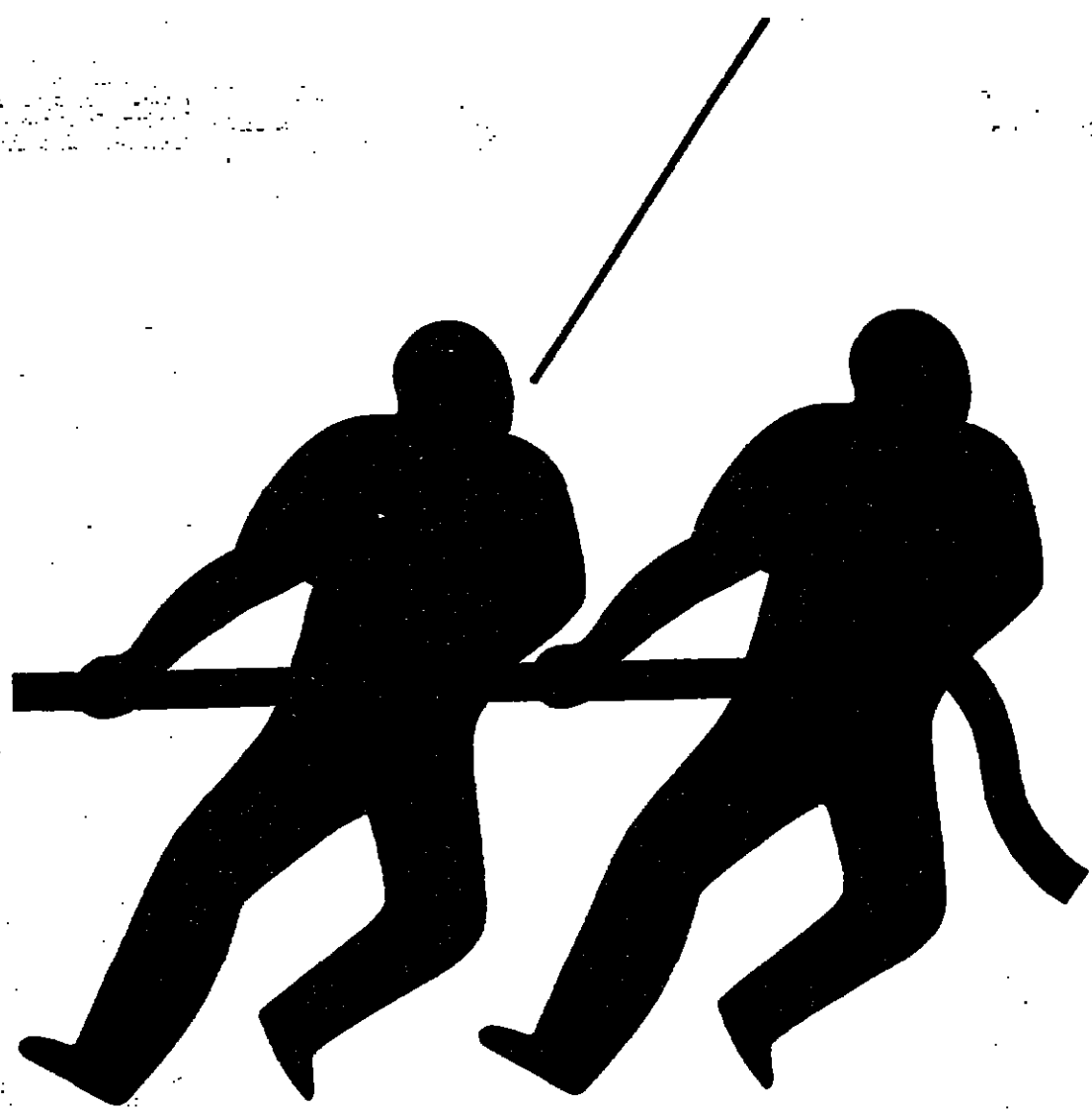
due July 1, 1987

NOTICE IS HEREBY GIVEN that, pursuant to the provisions of the Paying Agency Agreement dated as of June 27, 1967 by and between the Autopistas, Concesionaria Española, S.A. and The Chase Manhattan Bank (National Association), as American Paying Agent, and The Chase Manhattan Bank (National Association) (London), Banca Commerciale Italiana S.p.A., Banque de Paris et des Pays-Bas S.A., Deutsche Bank A.G. and Banque Internationale a Luxembourg S.A. as European Paying Agents, \$1,675,000 in principal amount of the above Bonds will be redeemed on July 1, 1987 at the principal amount thereof together with accrued interest thereon to said redemption date.

The serial numbers of the Bonds to be redeemed are as follows:

24	1088	3271	5055	6085	7123	8001	8278	8656	9187	9419	9687	10220	11337	12008	12651	14084	15572	17187	19011	19273	19495	19824
27	1102	3276	5057	6086	7124	8004	8280	8659	9190	9421	9688	10221	11341	12012	12654	14085	15573	17188	19012	19274	19496	19825
30	1120	3277	5058	6087	7125	8005	8281	8660	9191	9422	9689	10222	11342	12013	12655	14086	15574	17189	19013	19275	19497	19826
33	1138	3278	5059	6088	7126	8006	8282	8661	9192	9423	9690	10223	11343	12014	12656	14087	15575	17190	19014	19276	19498	19827
36	1156	3279	5060	6089	7127	8007	8283	8662	9193	9424	9691	10224	11344	12015	12657	14088	15576	17191	19015	19277	19499	19828
39	1174	3280	5061	6090	7128	8008	8284	8663	9194	9425	9692	10225	11345	12016	12658	14089	15577	17192	19016	19278	19500	19829
42	1192	3281	5062	6091	7129	8009	8285	8664	9195	9426	9693	10226	11346	12017	12659	14090	15578	17193	19017	19279	19501	19830
45	1210	3282	5063	6092	7130	8010	8286	8665	9196	9427	9694	10227	11347	12018	12660	14091	15579	17194	19018	19280	19502	19831
48	1228	3283	5064	6093	7131	8011	8287	8666	9197	9428	9695	10228	11348	12019	12661	14092	15580	17195	19019	19281	19503	19832
51	1246	3284	5065	6094	7132	8012	8288	8667	9198	9429	9696	10229	11349	12020	12662	14093	15581	17196	19020	19282	19504	19833
54	1264	3285	5066	6095	7133	8013	8289	8668	9199	9430	9697	10230	11350	12021	12663	14094	15582	17197	19021	19283	19505	19834
57	1282	3286	5067	6096	7134	8014	8290	8669	9200	9431	9698	10231	11351	12022	12664	14095	15583	17198	19022	19284	19506	19835
60	1300	3287	5068	6097	7135	8015	8291	8670	9201	9432	9699	10232	11352	12023	12665	14096	15584	17199	19023	19285	19507	19836
63	1318	3288	5069	6098	7136	8016	8292	8671	9202	9433	9700	10233	11353	12024	12666	14097	15585	17200	19024	19286	19508	19837
66	1336	3289	5070	6099	7137	8017	8293	8672	9203	9434	9701	10234	11354	12025	12667	14098	15586	17201	19025	19287	19509	19838
69	1354	3290	5071	6100	7138	8018	8294	8673	9204	9435	9702	10235	11355	12026	12668	14099	15587	17202	19026	19288	19510	19839
72	1372	3291	5072	6101	7139	8019	8295	8674	9205	9436	9703	10236	11356	12027	12669	14100	15588	17203	19027	19289	19511	19840
75	1390	3292	5073	6102	7140	8020	8296	8675	9206	9437	9704	10237	11357	12028	12670	14101	15589	17204	19028	19290	19512	19841
78	1408	3293	5074	6103	7141	8021	8297	8676	9207	9438	9705	10238	11358	12029	12671	14102	15590	17205	19029	19291	19513	19842
81	1426	3294	5075	6104	7142	8022	8298	8677	9208	9439	9706	10239	11359	12030	12672	14103	15591	17206	19030	19292	19514	19843
84	1444	3295	5076	6105	7143	8023	8299	8678	9209	9440	9707	10240	11360	12031	12673	14104	15592	17207	19031	19293	19515	19844
87	1462	3296	5077	6106	7144	8024	8300	8679	9210	9441	9708	10241	11361	12032	12674	14105	15593	17208	19032	19294	19516	19845
90	1480	3297	5078	6107	7145	8025	8301	8680	9211	9442	9709	10242	11362	12033	12675	14106	15594	17209	19033	19295	19517	19846
93	1498	3298	5079	6108	7146	8026	8302	8681	9212	9443	9710	10243	11363	12034	12676	14107	15595	17210	19034	19296	19518	19847
96	1516	3299	5080	6109	7147	8027	8303	8682	9213	9444	9711	10244	11364	12035	12677	14108	15596	17211	19035	19297	19519	19848
99	1534	3300	5081	6110	7148	8028	8304	8683	9214	9445	9712	10245	11365	12036	12678	14109	15597	17212	19036	19298	19520	19849
102	1552	3301	5082	6111	7149	8029	8305	8684	9215	9446	9713	10246	11366	12037	12679	14110	15598	17213	19037	19299	19521	19850
105	1570	3302	5083	6112	7150	8030	8306	8685	9216	9447	9714	10247	11367	12038	12680	14111	15599	17214	19038	19300	19522	19851
108	1588	3303	5084	6113	7151	8031	8307	8686	9217	9448	9715	10248	11368	12039	12681	14112	15600	17215	19039	19301	19523	19852
111	1606	3304	5085	6114	7152	8032	8308	8687	9218	9449	9716	10249	11369	12040	12682	14113	15601	17216	19040	19302	19524	19853
114	1624	3305	5086	6115	7153	8033	8309	8688	9219	9450	9717	10250	11370	12041	12683	14114	15602	17217	19041	19303	19525	19854
117	1642	3306	5087	6116	7154	8034	8310	8689	9220	9451	9718	10251	11371	12042	12684	14115	15603	17218	19042	19304	19526	19855
120	1660	3307	5088	6117	7155	8035	8311	8690	9221	9452	9719	10252	11372	12043	12685	14116	15604	17219	19043	19305	19527	19856
123	1678	3308	5089	6118	7156	8036	8312	8691	9222	9453	9720	10253	11373	12044	12686	14117	15605	17220	19044	19306	19528	19857
126	1696	3309	5090	6119	7157	8037	8313	8692	9223	9454	9721	10254	11374	12045	12687	14118	15606	17221	19045	19307	19529	19858
129	1714	3310	5091	6120	7158	8038	8314	8693	9224	9455	9722	10255	11375	12046	12688	14119	15607	17222	19046	19308	19530	19859
132	1732	3311	5092	6121	7159	8039	8315	8694	9225	9456	9723	10256	11376	12047	12689	14120	15608	17223	19047	19309	19531	19860
135	1750	3312	5093	6122	7160	8040	8316	8695	9226	9457	9724	10257	11377	12048	12690	14121	15609	17224	19048	19310	19532	19861
138	1768	3313	5094	6123	7161	8041	8317	8696	9227	9458	9725	10258	11378	12049	12691	14122	15610	17225	19049	19311	19533	19862
141	1786	3314	5095	6124	7162	8042	8318	8697	9228	9459	9726	10259	11379	12050	12692	14123	15611	17226	19050	19312	19534	19863
144	1804	3315	5096	6125	7163	8043	8319	8698	9229	9460	9727	10260	11380	12051	12693	14124	15612	17227	19051	19313	19535	19864
147	1822	3316	5097	6126	7164	8044	8320	8699	9230	9461	9728	10261	11381	12052	12694	14125	15613	17228	19052	19314	19536	19865
150	1840	3317	5098	6127	7165	8045	8321	8700	9231	9462	9729	10262	11382	12053	12695	14126	15614	17229	19053	19315	19537	19866
153	1858	3318	5099	6128	7166	8046	8322	8701	9232	9463	9730	10263	11383	12054	12696	14127	15615	17230	19054	19316	19538	19867
156	1876	3319	5100	6129	7167	8047	8323	8702	9233	9464	9731	10264	11384	12055	12697	14128	15616	17231	19055	19317	19539	19868
159	1894	3320	5101	6130	7168	8048	8324	8703	9234	9465	9732	10265	11385	12056	12698	14129	15617	17232	19056	19318	19540	19869
162	1912	3321	5102	6131	7169	8049	8325	8704	9235	9466	9733	10266	11386	12057	12699	14130	15618	17233	19057	19319	19541	19870
165	1930	3322	5103	6132	7170	8050	8326	8705	9236	9467	9734	10267	11387	12058	12700	14131	15619	17234	19058	19320	19542	19871
168	1948	3323	5104	6133	7171	8051	8327	8706	9237	9468	9735	10268	11388	12059	12701	14132	15620	17235	19059	19321	19543	19872
171	1966	3324	5105	6134	7172	8052	8328	8707	9238	9469	9736	10269	11389	12060	12702	14133	15621	17236	19060	19322	19544	19873
174	1984	3325	5106	6135	7173	8053	8329	8708	9239	9470	9737	10270	11390	12061	12703	14134	15622	17237	19061	19323	19545	19874
177	2002	3326	5107	6136	7174	8054	8330	8709	9240	9471	9738	10271	11391	12062	12704	14135	15623	17238	19062	19324	19546	19875
180	2020	3327	5108	6137	7175	8055	8331	8710	9241	9472	9739	10272	11392	12063	12705	14136	15624	17239	19063	19325	19547	19876
183	2038	3328	5109	6138	7176	8056	8332	8711	9242	9473	9740	10273	11393	12064	12706	14137	15625	17240	19064	19326	19548	19877
186	2056	3329	5110	6139	7177	8057	8333	8712	9243	9474	9741	10274	11394	12065	12707	14138	15626	17241	19065	19327	19549	19878
189	2074	3330	5111	6140	7178	8058	8334	8713	9244	9475	9742	10275	11395	12066	12708	14139	15627	17242	19066	19328	19550	19879
192	2092	3331	51																			

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UK and overseas.
Last year 28% of my
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came from building
fine homes.**



UK NEWS

Rigid adherence to monetarism slackens

IN NOVEMBER 1979, then-UK Chancellor of the Exchequer Sir Geoffrey Howe began a speech to the House of Commons with a justification of that morning's decision to raise the Minimum Lending Rate to 17 per cent. The culprit was above-target growth in Sterling M3 money supply.

Last month, the Governor of the Bank of England elaborated, in a major speech, on the official view that a rigid adherence to money supply aggregates in the setting of policy was now wholly inappropriate.

In the intervening years, clearly, there has been a radical shift in attitudes towards the use of monetary aggregates as linch pins of policy, more often than not informed by pragmatism in the face of constantly missed growth targets and an ever more obscure relationship between the money supply and inflation.

The Bank of England has always appeared to recognise the limits of money supply targets but has felt compelled to pay lip service to the rhetoric of monetarism emerging from the Treasury, particularly in the early years of Mrs Margaret Thatcher as Prime Minister.

The authorities have been through an uncomfortable period in which the key measure of broad

Janet Bush looks at a radical shift in the use of monetary aggregates as linch pins of economic policy since 1979, when Mrs Margaret Thatcher came to power as Prime Minister.

money supply growth, Sterling M3, was first downgraded and then dropped as a target - uncomfortable because, in the eyes of the City of London, there appeared to be nothing to take its place as a reference point in the framework of monetary policy.

Some discomfort has been removed with more obvious management of the exchange rate, particularly after the Louvre accord in February aimed at stabilising currencies.

Strenuous and detailed efforts by the Bank to analyse and explain the difficulties with broad money, most notably in the Governor's speech at Loughborough in the east Midlands last autumn when he talked at length about the effect of financial innovation on the money supply, have sought further to rid financial markets of this sense of unease.

The Bank's latest quarterly bulletin marked another stage in this explanatory process and the evolution of the money supply as an aid to policy-making moved on.

In a detailed analysis of the various qualities (and imperfections) of

different measures of broad money supply, it concluded that "any choice of dividing line between those financial assets included in, and those excluded from, broad money is to a degree arbitrary, and is likely to be invalidated by developments in the financial system."

The Bank announced its intention to publish the counterparts of two alternative measures of broad money supply, named M4 and M5, which it intends to analyse along with Sterling M3 (now renamed simply M3).

Both M4 and M5 have the advantage of lumping building societies together with other monetary sector institutions, reflecting the now thoroughly blurred distinctions between them which had rendered the old Sterling M3 measure, which excluded societies, so anachronistic.

The authorities appear to give no special weight to any of the three aggregates and seem to be keen to ensure no one measure becomes more fashionable as a tool of market analysis than any other.

The intention is to educate finan-

cial markets and City of London analysts into "de hooking" from a single-minded adherence to M3 without "hooking" on to any other measure. This hope may be in vain. One London-based securities house is already advocating a switch of focus to M5 and has suggested a target band for its growth.

The shift towards regarding monetary aggregates as a useful source of information about trends in the economy rather than as indicators whose behaviour elicits an automatic policy response gives the authorities a much greater degree of flexibility.

This flexibility may also spread to the definition of funding the Public Sector Borrowing Requirement. The funding rule is currently based on M3, defined as the matching of public sector borrowing by the sale of public sector debt outside the monetary sector.

Debt purchases or sales by building societies do not figure in the M3 definition of funding but do in M4 and M5 where societies are counted as monetary sector institutions.

This classification can make a dramatic difference.

In 1986-87, building societies were substantial net sellers of gilts amid uncertainty about the liquidity requirements of the new building societies act. Because societies are excluded from M3, this made no odds to funding. The PSBR was, in fact, underfunded by £400m.

However, under M4 and M5 definitions, these sales effectively funded the PSBR as gilts were transferred from the monetary sector to the non-bank private sector. Thus, on both these measures, the PSBR was overfunded by more than £40m in 1986-87 (incidentally depressing growth of both aggregates).

In more normal years, such large discrepancies should not arise and anyway do not present an operational problem for the Bank which regards the funding rule primarily as presentational.

However, the Bank appears to recognise at least the usefulness of having a funding rule based on M3. It is likely to stick with the current rule for the time being but will then probably move to a more nebulous, general funding definition. The Bank feels a degree of obscurity on the funding definition is probably desirable.

Jobless trend to 'settle at high level'

By Charles Leadbeater, Labour Staff

UNEMPLOYMENT will continue to fall over the next year or so but will then stabilise at an historically high level, according to the Manpower Services Commission's unpublished draft corporate strategy till 1991.

Publication of the strategy, which was drawn up in April, has been delayed because of the general election on Thursday. It was due to be presented to Lord Young, Employment Secretary in the last Government, in May.

Both the Conservative and Labour parties have made promises to commitments on training and employment measures which would lead to the plan being redrawn.

The draft plan predicts that employment growth will be predominantly in part-time jobs, temporary work and self-employment. It expects a further decline in the number of people out of work for more than a year. But it suggests the number of people out of work for more than five years will rise from its 1987 level of 245,000.

The commission, which administers the Government's employment programme, says that unemployment will stabilise at a high level after a slight fall. This projection is mirrored in its spending plans for the next four years.

The MSC expects it will need to maintain spending on the Restart programme of counselling for the long-term unemployed at around £55m in real terms between 1988 and 1991, after a rapid expansion this financial year.

The commission also foresees the need for an increase in spending on the Community Programme which provides temporary work for the long-term unemployed. Spending on the programme, which provides 300,000 places a year, will rise from £1.03bn this year, to £1.09bn in 1991. The plan indicates the Government may not be prepared to raise the average wage on the programme each year.

The commission also plans a major expansion in Job Clubs, which help groups of the unemployed search for jobs. For the first time the clubs will be managed by private agencies rather than government Job Centres.

Both the Enterprise Allowance Scheme, which helps unemployed workers set up their own businesses, and the Technical and Vocational Education Initiative, to promote vocational education in schools, will come to play more crucial roles in the MSC's strategy.

Lorrho's Seat UK subsidiary loses £4m in first year

BY KENNETH GOODING, MOTOR INDUSTRY CORRESPONDENT

THE LORRHO subsidiary which imports Seat cars from Spain to the UK suffered a £4.24m loss in its first year of trading on a turnover of £18.87m.

The company's managing director, Mr Doug Clare, resigned last week at a time when figures for the first half of the current financial year would have become available.

Lorrho said Mr Clare left for personal reasons but the indications are that Seat Concessionaires (UK), although making good headway with car sales, had not made fast enough financial progress to please Mr Tony Rowland, Lorrho's founder and chairman.

The Seat UK accounts show Mr Clare's remuneration for the year to September 30 was £33,632, up from £20,747 for the previous 12 months.

The accounts reveal Seat UK had a paid-up capital of £3m and a £7.5m unsecured bank overdraft at end-September. At that date the company employed 65 people and its liabilities exceeded net assets by £1.22m.

Lorrho won the contract to import cars from Seat, the last leading European car producer not represented in Britain, in the summer of 1984 but the first vehicles did not go on sale until November the following year.

Mr Clare, who is 50 this month, spent 13 years with VAG (UK), the Lorrho subsidiary which imports Volkswagen and Audi vehicles to the UK, before winning the Seat job.

He recently said Seat UK's turnover in the current financial year would be about £38m and the company would be very close to financial breakeven.

Last year, 5,900 cars were registered in the UK. Mr Clare predicted that the 1987 total would reach 10,000 and that the company would take 1 per cent of the UK new car market within three years.

A VAG (UK) director, Mr Guy Sinden, has taken over as acting chief executive of Seat (UK) while the search for Mr Clare's successor goes on.

Leyland plans closure of French truck unit

BY KENNETH GOODING, MOTOR INDUSTRY CORRESPONDENT

THE LEYLAND Trucks subsidiary in France, which was excluded from the deal when the state-owned Rover Group sold Leyland and the Freight Rover business to Daf of the Netherlands, is to close with the loss of all 70 jobs.

Leyland Vehicles Industries (LVI), with its headquarters at Gonesse, south of Paris, built up a network of 32 dealers in France as a small but significant bridgehead in what was to have been a long battle to establish the UK-built vans and trucks in continental European markets.

But Daf did not want LVI because

it already has its own, well-established subsidiary in France.

LVI has been selling about 200 heavy trucks and 500 Freight Rover Sherpas a year in France compared with Daf's registrations totalling 2,200 heavy trucks. Rover said staff at LVI had been told the operations would be scaled down and eventually closed.

Indications from France suggest that the closure will take less than a year. LVI dealers are taking no more orders - except for vehicles already in France - and the company is expected to cease trading by October.

Hi-tech property boost

BY PAUL CHEESERIGHT, PROPERTY CORRESPONDENT

SLOUGH ESTATES, the biggest industrial property company in the UK, has lifted the flagging high-tech property market west of London with the announcement of the largest single letting in the Thames valley.

It is to rent at £1.4m a year a 150,000 sq ft building to Digital Equipment Company at the Winners Triangle business park near Reading.

High-tech properties are those generally used by knowledge-based industries and are designed so that an occupier can easily switch uses

between, for example, storage, production and offices.

An increasing number of such properties has become available along the M4 motorway, which has developed into Britain's advanced technology corridor. Although demand for high-tech space has been steady, it has not returned to the peak touched in 1984.

The letting to DEC is seen as reflecting the latent demand for new property. The building has not been constructed. When completed, it will be used as a logistics centre for DEC's operations in southern England.

NOTICE OF REDEMPTION

To the Holders of

General Mills, Inc.

U.S. \$100,000,000 12% Notes, Series A, due December 19, 1991

NOTICE IS HEREBY GIVEN to the holders of the outstanding 12% Notes, Series A, due December 19, 1991 (the "Notes") of General Mills, Inc. (the "Company") that pursuant to the provisions of Section 7(a) of the Series A Fiscal and Paying Agency Agreement dated as of December 19, 1984 between the Company and Morgan Guaranty Trust Company of New York (the "Fiscal Agent") and paragraph 4(a) of the Terms and Conditions of the Notes, the Company has elected to redeem on July 6, 1987 U.S. \$1,475,000 principal amount of the Notes (the "Redemption Notes") at a redemption price equal to 101% of the principal amount thereof, together with accrued interest to said date, in the amount of U.S. \$328.33 for each U.S. \$5,000 principal amount as follows:

OUTSTANDING NOTES OF \$5,000 EACH BEARING THE FOLLOWING DISTINCTIVE NUMBERS:

47	828	1357	1838	2435	3185	3679	4233	4973	5635	6235	6633	7275	7723
94	835	1381	1885	2442	3192	3686	4240	4980	5640	6240	6638	7278	7726
110	886	1439	1952	2554	3204	3698	4252	4992	5652	6252	6650	7290	7738
112	861	1471	2048	2657	3211	3705	4259	5000	5657	6257	6655	7295	7743
174	896	1485	2098	2673	3216	3710	4263	5004	5660	6260	6658	7298	7746
197	905	1497	2127	2683	3219	3713	4266	5007	5663	6263	6660	7301	7749
320	928	1505	2133	2688	3222	3716	4269	5010	5666	6266	6663	7304	7752
282	944	1514	2143	2698	3229	3723	4276	5017	5673	6273	6668	7307	7755
290	971	1542	2200	2636	3236	3730	4283	5024	5680	6280	6671	7314	7762
318	986	1574	2218	2643	3243	3737	4290	5031	5687	6287	6674	7317	7765
322	996	1582	2234	2684	3249	3739	4296	5033	5693	6293	6676	7319	7767
474	1009	1604	2254	2791	3250	3740	4297	5034	5694	6294	6677	7320	7768
1024	1024	1623	2276	2825	3255	3745	4302	5039	5699	6299	6682	7325	7773
533	1059	1629	2281	3012	3253	3747	4304	5041	5701	6301	6684	7327	7775
537	1099	1641	2314	3029	3254	3748	4305	5042	5702	6302	6685	7328	7776
570	1114	1668	2335	3046	3257	3751	4308	5045	5705	6305	6688	7331	7779
656	1130	1705	2403	3059	3261	3753	4310	5047	5707	6307	6690	7333	7781
711	1162	1773	2428	3087	3262	3754	4311	5048	5708	6308	6691	7334	7782
713	1275	1784	2457	3095	3263	3755	4312	5049	5709	6309	6692	7335	7783
737	1289	1793	2466	3098	3264	3756	4313	5050	5710	6310	6693	7336	7784
769	1396	1816	2469	3155	3277	3777	4335	5059	5719	6319	6692	7335	7783

Payment will be made, subject to applicable laws and regulations, in U.S. dollars on and after July 6, 1987 upon presentation and surrender of the Redemption Notes with coupons due December 19, 1987 and subsequent coupons attached, failing which, the amount of missing interest coupons will be deducted from the sum due for payment and paid in the manner set forth in the Terms and Conditions of the Notes against surrender of the related missing interest coupons within the period of time prescribed by the applicable statute of limitations, at the main offices of the Fiscal Agent in London, Brussels, Frankfurt am Main, Paris and Tokyo, the main office of Amsterdam-Rotterdam Bank N.V. in Amsterdam, the main office of Swiss Bank Corporation in Basel and the main office of Kredietbank S.A. Luxembourg in Luxembourg. Payments at said offices will be made by a United States dollar check drawn on a bank located in the City of New York, or by transfer to a dollar account maintained by the payee with a bank in London. No payment on any Bearer Note will be made at the Corporate Trust Office of the Fiscal Agent or any other Paying Agency maintained by the Company in the United States nor, except as otherwise permitted by U.S. Treasury Regulations without adverse tax consequences, will any payment be made by transfer to an account maintained by the payee in, or by mail to an address in, the United States.

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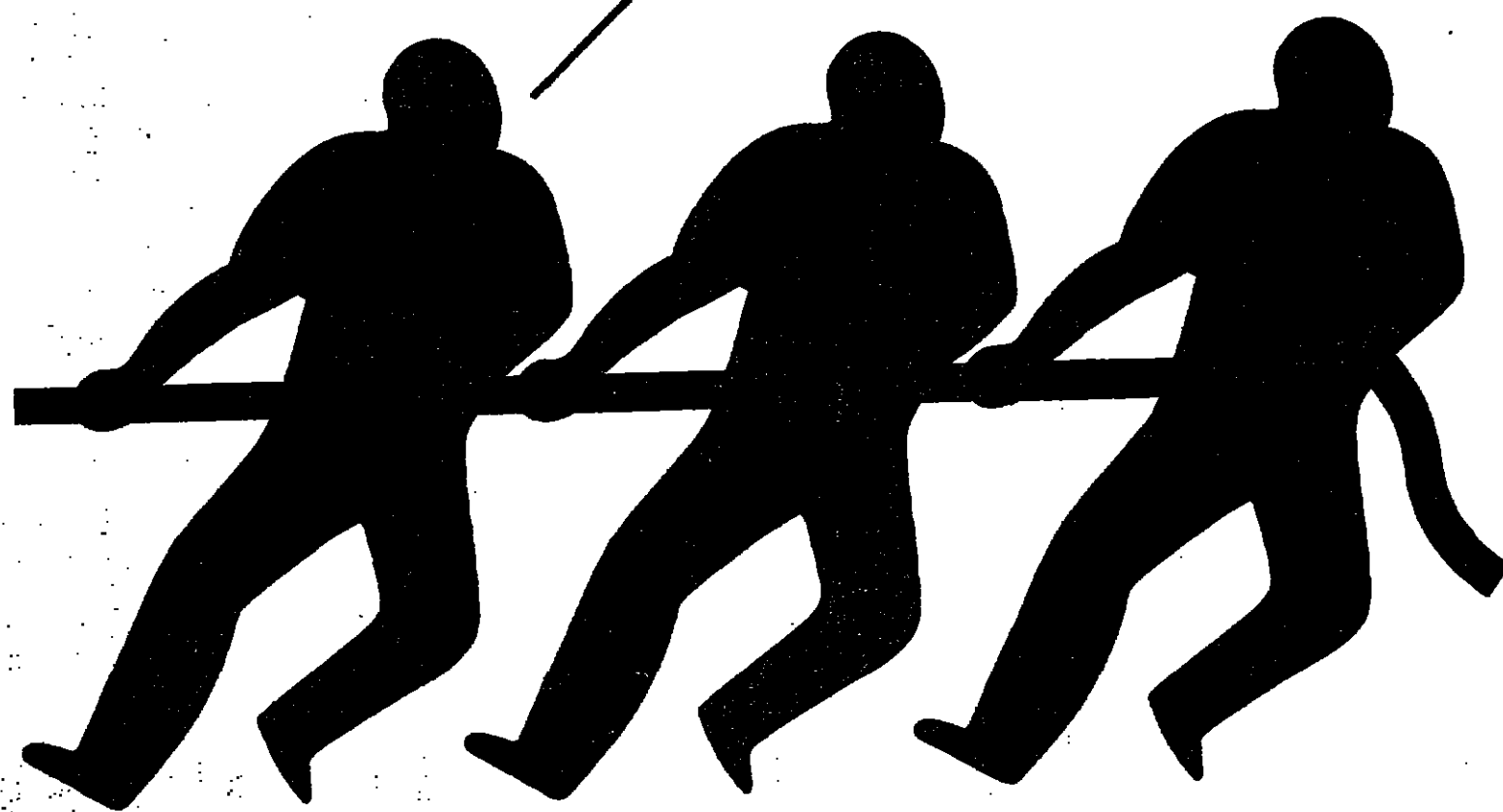
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MANAGEMENT: Small Business

UK election manifestos

Stalking an uncertain target

BY CHARLES BATCHELOR

FOR DECADES the Tory Party has been the natural choice of the small businessman in the UK. This election may show that this is no longer so.

High levels of unemployment have forced many blue-collar workers into self-employment; enterprise schemes in schools and universities have begun to produce a generation of young, politically-uncommitted entrepreneurs; and the rival parties, most notably Labour, have put a lot of thought into their small business manifestos.

"The growth of self-employment among people from a variety of backgrounds means you can't say which way they will vote," says Gerry Dawds, a spokesman for the Forum of Private Business, one of the largest of small business lobby groups.

"You can't assume they will vote Tory. In the marginal constituencies they could have a persuasive influence."

Seizing their chance, the Forum and several other small business organisations have been bombarding the party spokesmen and the candidates with questionnaires and suggestions for policies.

Despite the undoubted efforts of the parties, the lobby groups are still not satisfied. "There is nothing in any of them which is particularly new or very dramatic," sniffs Brendan Donnellan, general secretary of the 1,000-member Association of Independent Businesses.

"They all pay lip service to small firms but it is all very broad stuff. I would like to see more commitment."

Barry Baldwin, chairman of the Union of Independent Companies, agrees: "We find the manifestos a little woolly. There seems to be a lack of a precise understanding of our problems."

But Labour wins a degree of praise from Graham Bannock, an independent consultant on small firms affairs. "This is the first time Labour has come up with a coherent policy," he notes. "They realise they can't ignore small business. At the bottom end they are the new working class — often earning less than people in unionised jobs."

So how have the parties been fighting for the small business



vote? David Trippier, the energetic small firms minister, is in a tricky position. The Conservatives have launched a host of new schemes over the past few years but have recently been shifting the emphasis away to broader economic measures—such as cutting tax and reducing interest rates.

This has left the party with a shortage of eye-catching new programmes to dazzle the small business lobby and led it to concentrate its election effort on its past record.

If re-elected the Government plans no major new initiatives but wants to shift its emphasis to training the owners of existing businesses and away from encouraging new start-ups.

"We now have 2.7m self-employed people—the highest level for 60 years—and new companies are being set up, after allowing for failures, at a rate of 500 a week," says Trippier. "This is the highest percentage increase in history."

A little-noticed speech by Kenneth Clarke, the Employment Minister, to Tory small businesspeople last April opened up several new avenues for small firms policy.

He suggested a far more interventionist approach—US style — to a number of problems. Small firms should be given further encouragement to tender for local author-

ity and Government contracts while companies based in Britain's troubled inner cities should also be given special help.

Clarke also promised greater assistance for co-operatives, which he praised as a "wholly attractive idea" which had been hijacked by Tony Benn and the Labour left in the 1970s.

Labour, for its part, has been attempting to establish its credentials as a serious supporter of small business under Barry Sheerman, a former lecturer who had drawn heavily on the advice of the growing community of small business academics for his policies.

It was a Labour minister, Tony Crosland, who in 1969 set up the Bolton Committee, which put small business on the map. And it was Labour again which set up the Wilson Committee in the late 1970s to review progress, Sheerman notes.

Nevertheless, Labour has something of an uphill struggle to establish itself as the natural party of small business. "Labour is more of a practical and less ideological after eight years in opposition," Sheerman told an all-party debate on small business issues organised by the Forum of Private Business last week.

Sheerman has outlined a 12-point programme of action, the

main thrusts of which are to switch the emphasis for promoting enterprise to the local community and away from Whitehall and to make sure that the strategies of the best of the locally run enterprise agencies and chambers of commerce are copied throughout the country.

He also wants to encourage enterprise awareness among the young and improve small business training schemes.

In attacking the Conservatives on these issues, particularly on the role of the enterprise agencies, Sheerman is taking Trippier on in the area where the minister could justifiably claim his major successes. The agencies, which dispense advice and sometimes funds to small businesses, have increased their numbers from 10 to more than 50 in the past four years though Trippier himself acknowledges not all are up to scratch.

But it is over the broader money issues such as taxation, interest rates and plans for a national minimum wage that Labour is most vulnerable to the charge that it would increase small business costs.

The Alliance, alongside a vague promise to reduce the burden of tax and rate, does make specific proposals to introduce an industrial investment bond based on a US idea, to provide small firms with cheap, fixed-rate loans. British small businesses have long envied their West German, Japanese and French counterparts' access to this type of funding.

The Alliance also plans to back business start-up and expansion schemes designed specifically for women.

For all the thought the parties have given to their manifestos Barry Baldwin of the Union of Independent Companies feels that until Britain has a Small Business Act on the lines of similar American legislation the country's entrepreneurs will not be taken seriously.

The parties' acknowledgement of the small business issue reflects how far the sector has come over the past decade. The Forum of Private Business puts the small business vote at 5m people, comprising the owners and their spouses. They represent 12 per cent of the electorate — potentially a very powerful lobby.

REGIONAL POLICIES have fallen out of favour in Britain in recent years, allowing the south-east to exert a strong economic pull on the rest of the country.

In West Germany, by contrast, the small businessman has been almost overwhelmed in the past decade with a welter of support schemes as the provincial land governments have introduced small firms legislation alongside the existing federal programmes.

But as assistance for small firms has proliferated, concern has been growing that the sheer diversity of these measures is confusing rather than helping the small business owner.

"There are Laender which are dependent on one or two main industries: those with smaller firms and those which are agricultural so they all need their programmes," says Peter Andersen, head of the small firms policy section in the Economics Ministry in Bonn. "That is understandable. But what is not understandable is the fact that they won't co-operate or exchange information."

Now the federal government has started to weed out some of its own business support programmes in favour of wide-ranging tax cuts but there is no sign that the Laender plan to follow suit.

Even provinces such as North Rhine-Westphalia, an area where the economy has traditionally been dominated by large coal, steel and textile concerns, are pursuing a small firms policy. In fact, the accelerating decline of the region's staple industries in recent years has focussed more attention on its small firms.

Pressure on the provincial governments based in the provincial capital of Düsseldorf, consider this sector of the

Confusion arises from policy proliferation

Charles Batchelor on W German regionalism

economy that it has a separate Ministry for Small and Medium-sized Enterprises—the Mittelstand.

The southern German provinces of Baden-Wuerttemberg and Bavaria, where small high-tech companies cluster round the large automobile and aerospace groups, may have become more fashionable of late but North Rhine-Westphalia has done as much to promote small high-tech businesses as the other Laender, claims Alois Fischer, an economic adviser to the provincial government.

North Rhine-Westphalia has lost 1.5m jobs in its main heavy industry sectors since the 1960s but has made up almost half this number in other sectors in smaller firms he adds.

The province has more than 470,000 (non-agricultural) small and medium-sized enterprises—those employing up to 500 people with a total workforce of about 4m people. Apart from supplying nearly 85 per cent of all apprenticeships, they provide jobs close to people's homes—because of their flexibility—stability in a time of rapid economic change.

Pressure on the provincial budget has led to cuts in the total funds available for smaller firm support over the past seven

years and prompted a more selective support programme.

New start-ups and high technology ventures became the targets for financial aid while the advisory effort was concentrated on export promotion and (again) technology.

Start-up assistance takes the form of cheap credits of up to DM 300,000 (£101,000) or 30 per cent of the eligible investment, whichever is the higher. North Rhine-Westphalia also claims to be one of the first Laender to have provided help for the creation of co-operatives.

Help with exporting takes the form of providing advice, assistance in participating in trade exhibitions in difficult markets and selectively guaranteeing export business.

High-tech assistance is available to the smaller firm from ZENTIT—the Centre for Technology and Technology—set up in 1984 in Muelheim with the backing of the Land, the Westdeutsche Landesbank (which acts as a central bank for the region's savings banks) and a group of 35 local small firms.

ZENTIT acts as a technology transfer centre, spreading ideas for products and processes out from larger companies to small firms in fields such as computer-aided design and manufactur-

ing, surface technology and environmental protection. One way it does this is to build models of new technologies which it then demonstrates to the small businessman.

A number of the province's technology support programmes have the backing of local savings banks. One of the traditional strengths of small business in Germany has been the presence of thousands of these banks whose managers have close knowledge of the locality. While Britain's banks have an extensive branch network many businessmen feel their centralised policy making structure is less attuned to the needs of small firms in the regions.

Local savings banks in North Rhine-Westphalia are backing technology centres and providing special credits for high-tech ventures promoted by colleges of technology. Some have even formed venture capital funds to take equity stakes in small high-tech firms. While the trend in recent years has been for stronger provincial initiatives to back small business, in one important area the move has been towards centralisation.

Germany's eight stock exchanges have begun to co-operate more closely in an attempt to compete more effectively with rival foreign exchanges. But even if Düsseldorf, second largest of the German exchanges after Frankfurt, loses some of its independence, the gains in terms of improved liquidity seem likely to outweigh any disadvantages.

Rationalising Germany's stock exchanges is unlikely to lessen the determination of the country's Laender to maintain their independence. Many of the small firms policies followed by North Rhine-Westphalia have their counterparts in the other 10 provinces.

In brief...

FRANCE has clocked up considerable success in commercialising advanced technology fields such as electronics and biotechnology. More recently it has embarked on a modernisation of its financial markets. Both areas come together in a new survey of the French venture capital industry and its implications for funding high technology.

Venture Funding and High Technology in France, the Players, the Stakes, the Future* looks at opportunities for foreign investors in French high technology, government efforts to promote business creation, venture capital developments and the effects of the second marché.

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*Howard Associates, 156 Mountain Avenue, Summit, NJ 07901 USA. Tel 201/277 4312. 125 pages \$450 until June 15 and \$550 thereafter.

NATIONAL WESTMINSTER has become the latest bank to introduce a standard tariff for its 400,000 small business customers. Lloyds Bank started the trend in July 1986 and was followed by Barclays last March leaving Midland as the last of the big four clearing banks not to provide this service.

The advantage for small business clients is that they can estimate in advance what their likely bank charges will be instead of being confronted at the end of the quarter with a bill they do not feel is justified.

NatWest is charging 48p for each debit and 55p per credit. There is also an account charge of £3 a quarter though the total charge may be reduced or cancelled by an allowance for cleared credit balances currently calculated at 2.5 per cent a year.

This tariff will apply to businesses with turnover of up to £100,000. However, companies under this limit but which still require the handling of large amounts of cash or volumes of cheques will be charged at an individually negotiated rate.

NatWest has also introduced free banking for customers on the government's Enterprise Allowance Scheme.

THE CBI is opening its Business Enterprise Award for the title of Company of the Year to smaller companies. The award, which goes to the company judged to have made the most outstanding contribution to wealth and job creation, is being extended to allow entries from any UK company with turnover of £1m a year or more. Previously £5m was the lower limit.

Entries close on July 31. Contact: Esther Twiss, CBI, Centre Point, 102 New Oxford Street, London WC1A 1DU.

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Perceptive reports this month include Technology Licensing and Royalties, Success in World PC Markets, An Advertising Plum, Joint Venture Haven in Austria, Videotape Success.

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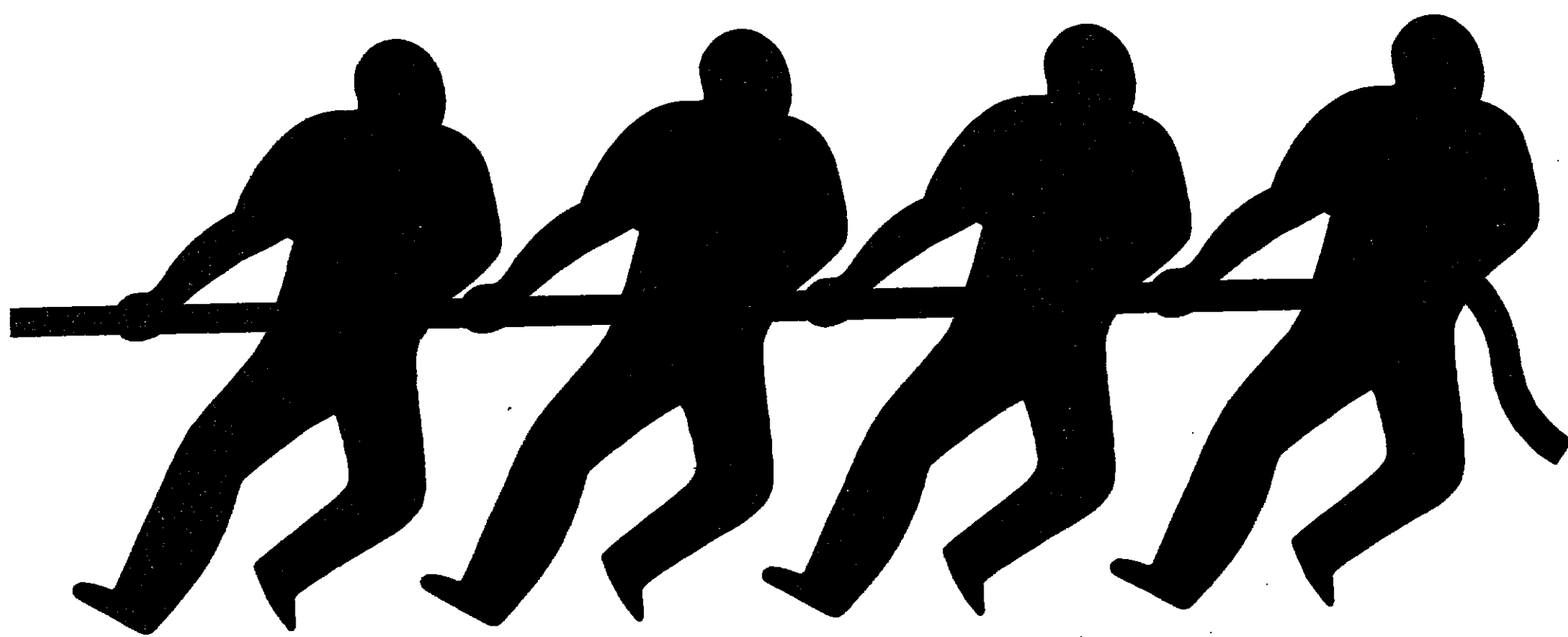
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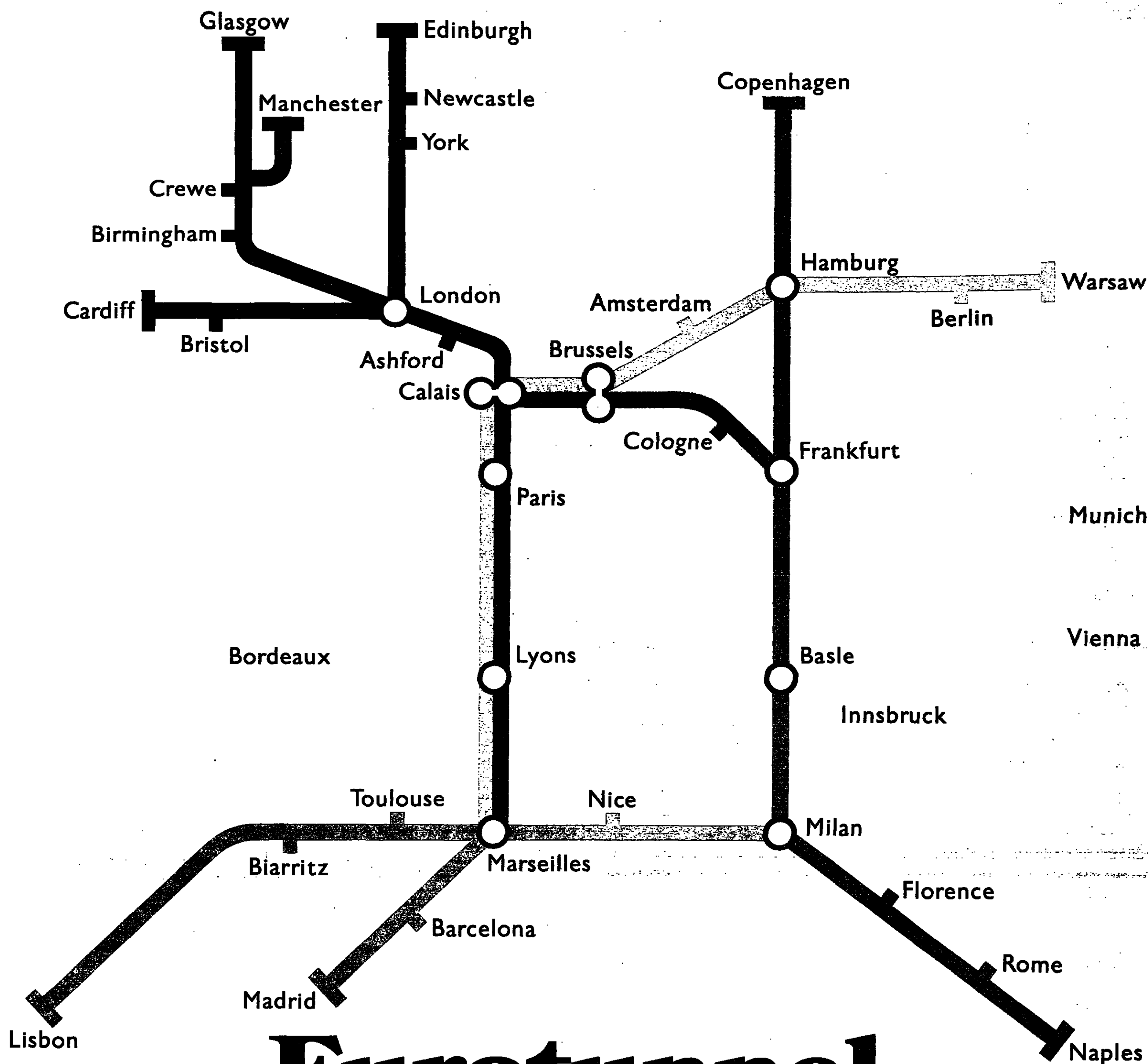
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Director, Retail Division Board
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The Circle K Corporation

Mrs Anita Roddick
Managing Director
The Body Shop International PLC

Mr Guido Venturini
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Chief Executive
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Mr Anthony J McCann
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FT LAW REPORTS

Miner cannot claim twice for pension loss

DEWS v NATIONAL COAL BOARD
House of Lords (Lord Keith of Kinkel, Lord Brandon of Oakbrook, Lord Griffiths, Lord Mackay of Clashfern and Lord Ackner): June 4 1987

DAMAGES for loss of earnings of an injured employee who suffers no devaluation in pension rights, do not include unpaid pension scheme contributions which would have been compulsorily or voluntarily deducted from his lost wages. The House of Lords so held when dismissing an appeal by Mr John Dewes from a Court of Appeal decision (1986) 2 FTLR 251 that he was not entitled to have his unpaid compulsory pension contributions taken into account in an assessment of damages for loss of earnings.

LORD GRIFFITHS said that Mr Dewes was a miner. He was injured in the course of his employment. He sued his employer, the National Coal Board (NCB) and was awarded damages.

It was a condition of his employment that he should belong to the Mineworkers' Pension Scheme and that he should contribute a percentage of his wages to the scheme. The NCB was entitled to, and did deduct that sum from his weekly wage and paid it directly into the scheme. It made an equal contribution to the scheme.

If a member of the scheme was off work and received no wages neither he nor the employer was obliged to make any contribution. It was a particular feature of the scheme that if a member was off work for less than 18 months, the break in contributions by him and the employer caused no loss of pensionable service and therefore no prospective loss of pension under the scheme.

For a part of the period that Mr Dewes was off work neither he nor the NCB made any contributions to the scheme. The "lost" contributions amounted to £110.55 representing Mr Dewes's contributions, and £55 the NCB's. However, as Mr Dewes was off work for less than 18 months that in no way affected his pension entitlement.

Mr Dewes claimed the £110.55 of his head of damage, one of his heads of damage. Mr Justice Michael Davies held that he was entitled to recover the £55 which would have been contributed out of his wages, but not the £55 NCB contribution.

The Court of Appeal unanimously allowed the NCB's appeal. Mr Dewes did not cross-

appeal against the finding that he was not entitled to the NCB contribution.

It was a fundamental principle of English law that damages for personal injuries were compensatory, and intended so far as money could be put to the plaintiff in the same financial position as in the accident had never happened.

If that fundamental principle were applied Mr Dewes was not entitled to recover the £55. If he had not been injured he would never have received that sum, as under the terms of his contract it would have been paid directly into the scheme and would not have been available to him to dispose of as he chose as part of his earnings.

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pulsory. If the evidence showed that a plaintiff had been regularly making contributions to a voluntary scheme so that, but for the accident, probability pointed to continuation of contributions, the same principle would be applied.

It would of course be easier to apply the principle in a compulsory scheme because it was possible to say with certainty that the plaintiff would not have received that part of his wages for his immediate disposal and that it would have gone to the pension scheme.

In the case of voluntary contributions the likelihood of the contributions having been continued would have to be taken into account.

The appeal should be dismissed. Lord Keith, Lord Brandon and Lord Ackner agreed. LORD MACKAY also agreeing, said that a tortfeasor was concerned with the disposal of any part of the plaintiff's remuneration which was applied to obtain benefits which might be affected by his injury and would be a proper subject of claim.

If a plaintiff were entitled to a benefit such as a pension right which was damaged and the tortfeasor was bound to compensate him for reduction in its value, the tortfeasor must be concerned with the extent to which his remuneration was required to be devoted to obtaining the benefit.

In the normal case one might expect failure to pay contributions to have the effect of diminishing pension rights. Where that happened the plaintiff could not claim both loss of contribution and the consequent diminution in value of pension rights.

The speciality of the present case was that the failure to pay contributions because of the terms of the pension scheme did not produce any consequent diminution in pension rights.

The correct analysis was that the arrangement under which Mr Dewes was insured no loss of pension rights although no contributions were paid was part of the arrangement under which he worked at the time of the accident. Since, viewing that arrangement as a whole, he had suffered no loss in respect of the pension scheme, his claim failed.

For Mr Dewes: Robert Alexander, QC, and Simon Grenfell (Raley & Pratt, Barnsley). For the NCB: Tom Morison, QC, and Nicholas Underhill (Cyril Peach, NCB).

By Rachel Davies
Barrister

This advertisement does not constitute an offer, or invitation to the public to subscribe for or to purchase any shares in Southern Cross International Investments Limited.

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Company Notices

INVESTISSEMENTS ATLANTIQUE
société anonyme

Registered Office:

Luxembourg, 14, rue Aldringen
The quorum required for the First Extraordinary General Meeting of shareholders held on May 15th 1987, the shareholders are invited to attend a SECOND EXTRAORDINARY GENERAL MEETING OF SHAREHOLDERS to be held at the registered office at Luxembourg, 14 rue Aldringen, on June 25th 1987 at 14.30 o'clock for the purpose of considering and voting upon the following matters:

To renew the authorization to issue additional shares within the authorized capital for a further five year period.

The shareholders are hereby informed that this Second Extraordinary Meeting of Shareholders shall validly vote on the points of the agenda no matter what portion of the share capital of the Corporation will be present or represented.

In accordance with Luxembourg law, resolutions will be subject to a majority of 2/3 of the shares represented at the meeting, provided, however, that at this second meeting shares not represented will (in a number not exceeding 1/3 of the total number of outstanding shares) be deemed to vote for the resolutions proposed above, and provided further that in such latter case the resolutions must be voted by the majority of the shares represented at the meeting.

To attend the Extraordinary General Meeting of Shareholders of June 25th 1987 owners of registered shares should have their names recorded in the company's register of shareholders five working days prior to the meeting and owners of bearer shares deposit their shares at least five working days prior to the meeting with following bank:

—Banque Générale de Luxembourg S.A.
14 rue Aldringen, Luxembourg
The Board of Directors

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(The Company's Reg. 0570458/05)

(Incorporated in the Republic of South Africa)
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Your attention is drawn to the announcement of the declaration of a final dividend of 350 cents per share in respect of its ordinary shares. This dividend is payable on 25 June 1987 to holders of the shares on the register of shareholders on that date.

In terms of the First Supplementary Declaration of Dividend of 1987, the interest payable on the loan stock is 10% per annum, payable on 31 July 1987. The interest payable on the loan stock is 10% per annum, payable on 31 July 1987. The interest payable on the loan stock is 10% per annum, payable on 31 July 1987.

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UK NEWS — THE GENERAL ELECTION

Kinnock accuses Venice leaders of complacency

BY MICHAEL CASSELL, POLITICAL CORRESPONDENT

MR NEIL KINNOCK, the Labour leader, yesterday accused the leaders of the western nations gathered in Venice of "grandiose complacency" and called for a coherent, international trade and financial policy to stimulate economic growth.

Speaking in Birmingham, Mr Kinnock accused Mr Thatcher of going to Venice "just long enough for a sandwich, a sunbath and a photo-session." He said that if he believed her visit would serve any constructive purpose, he would applaud her temporary absence from the election campaign.

But he did not think she or any of the other western heads were intent upon taking the action required to stimulate expansion. They were, he added, "buying time and not seeking solutions."

The Labour leader said it was necessary to ensure that the Venice meeting represented the last "sit tight" summit. In future, the leading economic powers had to overcome their "paralysis of will" and orchestrate policies which not only helped their own economies but which lifted the burdens of debt and famine from the less developed nations.

He claimed that the policies of the main economies had created a slump which spread depression and unemployment around the world. Governments had cut public spending and attempted to control the money supply by raising interest rates but their actions had forced countless employers out of business.

Only the increase in the US budget deficit, Mr Kinnock argued, had stimulated a "stumbling revival" in other countries and now that fragile expansion was threatened by the growing US balance of payments deficit.

Hopeful exhortation to the US to cut its deficit and to other nations to expand their economies were, he stressed, no substitute for a coherent, international economic programme intended to stop the menace of creeping protectionism. Mr Kinnock instead called for an agreed mechanism for the regulation of trade, finance, operated within the objective of expansion.

While acknowledging the weaknesses of the Bretton

Mr Nigel Lawson, the Chancellor, told a press conference in London that the Government was going to the Venice summit with five objectives. He said the British team would be seeking reaffirmation of the action agreed among central bankers to maintain exchange rate stability and measures by the US, Japan and West Germany to underwrite that stability and to prevent a faltering in world growth.

It would also seek firm declarations against protectionism, ways of dealing with world agricultural problems and of easing the debt burdens of very poor countries.

Mr Lawson said he, the Prime Minister and Sir Geoffrey Howe, the Foreign Secretary, would be attending the summit as the Government of the country with the fastest economic growth.

Woods agreement of 1944, he said it still represented a source of inspiration for those intent upon creating a more efficient, international economic regime.

A new agreement to foster world trade and to provide the answer to competitive deflation and protectionism would have to entail a commitment to expansion and employment, the creation of a stable financial system which discouraged speculation and the establishment of a mechanism for adjusting the trade balance in deficit countries without jeopardising employment and growth, he added.

"What we seek, and what the summit should be pursuing, is a different way. That way means using the resources that are now spent on idleness to pay for growth. It means turning the benefit-claiming jobless into tax-paying workers."

"It means turning the poverty-stricken supplicant nations of the world into prosperous producers and paying consumers. It means building a system of international co-operation, not a system of international threats, and trade wars," Mr Kinnock concluded.

Owen urges Gulf shipping initiative

BY IVOR OWEN

DR DAVID OWEN, leader of the Social Democrats, called yesterday for determined efforts by Britain to persuade the Soviet Union to join in internationalising shipping movements in the Persian Gulf.

He stressed: "What is needed is not a US initiative in the Gulf but an international initiative."

Dr Owen urged Mrs Thatcher to seize the opportunities available to her at the economic summit in Venice and not merely to treat it as "just one Cornetti photo opportunity" in her bid to secure a third term as Prime Minister.

"A gondola on the Grand Canal and a serenade by President Reagan is no substitute for real leadership," he said.

Dr Owen, addressing the Commonwealth and Diplomatic Writers Association in London, underlined the importance of making it clear to Iran that interference with shipping in the Straits of Hormuz would be seen as a challenge to the international community.

The involvement of the Soviet Union was crucial because it was not in western interests to monopolise shipping

in the Gulf at the present time.

Dr Owen maintained that Britain could and should be able to expand its economy without inflationary consequences as an adjunct to the more ambitious but carefully staged expansionist policies required from Japan and West Germany.

He endorsed the view that the effect on the dollar would be the test of the value of the economic summit and suggested that both Britain and the US were likely to agree to a more interventionist role in the interests of currency stability.

Dr Owen described Mrs Thatcher as "one of the most narrowly based political leaders" Britain had ever had and contended that though she was the longest-serving head of government attending the summit, it was likely to make a contribution that fell short of what was needed.

He said the Venice summit should sound the alarm and provide the leadership needed to get the industrialised world to draw back from the economic precipice.



Dogged pursuit of votes: Christopher Huhne (top) in Oxford West and Andrew Smith in Oxford East

Support for minimum wage policy

By Philip Bassett

CONSERVATIVE claims that a national minimum wage as advocated by Labour would lead to the loss of between 60,000 and 600,000 jobs is "wildly inaccurate," according to a report by two Cambridge economists.

Lord Young, the Employment Secretary, made the claim on the basis of a national minimum wage of £80 per week in an effort to show Labour's programme as likely to lead to job losses.

Mr Frank Wilkinson and Mr Peter Brosnan, from Cambridge University's department of applied economics, claim that Labour's policy is "an essential foundation for sound economic development."

Tied to a cut in VAT, higher income taxes for the highest paid and a subsidy for clothing, the two economists argue that Labour's policy would increase domestic consumption by about £370m, producing an overall increase in employment of some 30,000.

The report, published in outline today by the Low Pay Unit pressure group, says that a minimum wage set at about two-thirds of average earnings—the rough target of the TUC—would raise average labour costs throughout the economy by 3.5 per cent.

Cheap Labour — Britain's False Economy, by P. Brosnan and F. Wilkinson. To be published by the Low Pay Unit, 9, Upper Berkeley St, London W1H 8BY.

THOUGH it has been a drearily worthy election campaign on television with the emphasis in most programmes falling on the issues, it seems clear that, thanks largely to television, the electorate today is better equipped to make an informed choice than ever before.

It was interesting and irritating to watch the beginning of Channel 4's usually excellent After Dark discussion on Friday in which a group of middle-class intellectuals made ritual complaints about the way that television was turning general elections into personalised presidential campaigns and ignoring the issues.

"In this election we haven't had any politics," said Anthony Smith, director of the British Film Institute. "There was a time when arguments counted," drawled churchman Hugh Montefiore. And when American John Edgeman said: "D'y'all have head-to-head debates between the candidates?" nobody quite knew what to say. In the end philosopher Mary Midgeley suggested: "They're not very keen, are they?"

It was an all-too-familiar performance in which well-educated, professional people, rich enough to be Economist readers, with lifestyles that keep them out in the evenings at dinners or the theatre, casually condemned television in terms which proved that, compared with most viewers, they hardly ever see it.

Nobody who had actually watched Channel 4 News, Panorama, Weekend World,

Peter Riddell on fresh clues to voting intentions in Oxford's two seats

Third parties again hold the key

MEN WITH TATTOOS on their arms invariably vote Conservative. Names on the electoral roll are also a clue. "If it's Nigel and Gillian, forget it, they're Alliance," says one experienced Tory canvasser. "Olive and Ronald, that's all right," it was.

"David and Hilary, probably Alliance"; wrong, they were Tory. David had a tattoo. "Henry and Rhoda, either old-fashioned Labour or Tory." They were Conservative and proud of it because of defence. Perhaps a new parlour game has been born?

These candidates' adages and others about the new face of British politics were tested during a two-hour walk round a council estate of 1930s and 1950s terraced and semi near the Rover Group's Cowley plant in Oxford.

The old class predictors of voting have broken down. The Tory working-class vote is alive and well in Oxford East. It is to hold on to his slim margin of 1,267. He claims to be holding on to his 40 per cent share then.

In his four years in the Commons, Mr Norris, has made a name as a witty speaker, with an interest in freedom of information issues. And as the owner of an up-market car business he has a good line in salesman's patter on the doorstep.

Defence and the "loony left" issues are, he says, helping him, though he has faced questioning on pensions (less than expected even so), education and housing.

Most serious has been the health service, which, together with other public services, is now a larger employer than Rover in a constituency which stretches east and south of the university. A number of people have said: "I can't vote for you because I work in the health service."

Mr Andrew Smith, his Labour challenger, agrees on the main issues. In addition, he has been focusing on the Cowley workers, many of whom deserted Labour in 1983, by warning that the plant's future

would be in doubt under the Tories, citing the abortive talks with Ford in January 1986.

He is one of the party's new-style candidates who spends most of his time on politics. Educated at the university, he is education officer for Oxford and Swindon Co-op, has been a city councillor since 1978, and has been nursing the seat since before 1983.

Labour's campaign reflects its improved general organisation—an election address with colour photos and messages targeted to particular groups— together with the higher morale produced by the national effort.

Constituency profile on OXFORD

Oxford East is the Tories' 12th most vulnerable seat and Labour's cautious confidence rests on squeezing the 22.7 per cent vote in 1983 of Mrs Margaret Giddens of the Liberal/SDP Alliance. She admits the risk of a squeeze, though concedes this could be as much anti-Labour as anti-Tory. She claims a large number of voters are still undecided.

The Liberals have built up some local government support, but are clearly the also-rans in this seat, which Labour needs to win if it is to show any real advance nationally.

The picture is very different on the other side of Magdalen Bridge. Oxford West and Abingdon includes the main university area and stretches out to include the small towns and villages to the west. Although held by Mr John Patten, the Housing Minister, with a

7,151 majority at the 1983 election it is one of the SDP's key target seats.

The SDP has put in considerable resources and Mr Chris Huhne, its candidate, clearly feels the time, and mood, in Oxford are right for the seat to be won by the economics correspondent of the Guardian. He says particular stress on squeezes in funding of higher education and scientific research with personally addressed letters to academics.

There has, incidentally, been a high-tech rivalry between the Alliance and the Tories over which is more advanced in using their laser printers to send letters to target special interest groups or undecideds.

Mr Huhne is good on the doorstep, though when touring an old people's home he was advised to say he was a Liberal; the Alliance being a somewhat novel fashion.

If the Tories are vulnerable with the professional middle-class vote (though some of this may already have defected in 1983), their working class support is said to be solid. A poll of students also showed the Tories doing less badly than in previous surveys, though still third. (Judging by the posters in the windows of Balliol College, Labour outnumbered its rivals, with the Tories third.)

As with Oxford East, the key in Oxford West lies with the third party — in this case Labour which took 16.9 per cent in 1983. Despite some talk of a pairing of tactical voters between the two constituencies, Labour's Mr John Power will have no such suggestions. He is a former Cowley shop steward and locally born traditional Labour man and councillor (he supported the Falklands expedition).

His objective is to see off the outsider, Mr Huhne, and to defend Labour's strong local government base in Oxford.

The only published poll, commissioned and paradoxically released by the SDP, shows that Mr Power has improved on Labour's 1983 position and that Mr Patten should win comfortably. Despite his confidence

about squeezing the Labour vote, Mr Huhne needs a better national SDP showing and a worse Tory one to win.

The Tories in both Oxford seats have had the benefit of the intervention of Mr Jeffrey Archer, who appears to be rivaling Mr Michael Heseltine in activity (though neither would appreciate the comparison), visiting more than 120 seats.

Speaking to the faithful in Conservative clubs and using novelist's licence he recalled sitting in the Commons both when Mr Denis Healey went to

1983 results — OXFORD EAST: S. Norris (C) 15,508; A. D. Smith 17,541; Mrs M. Giddens (Lib) 10,590. C majority 1,267. Turnout 73.9 per cent.

Candidates: S. J. Norris (C); A. D. Smith (Lib); Mrs M. Giddens (Lib); D. Patten (Green).

OXFORD WEST and ABINGDON: J. Patten (C) 23,778; D. E. T. Luard 16,627 (Lib); J. Jacotet (Lab) 8,448; Mrs M. Stammer (Ecology) 544. C majority 7,151. Turnout 73.9 per cent.

Candidates: J. Patten (C); J. G. Power (Lab); C. M. F. Huhne (SDP); D. Smith (Green).

Washington in 1976 seeking 24th from the IMF and during the Lib/Lab pact of 1977-78. Mr Archer actually left the Commons in February 1974. Mr Healey never went to Washington in the IMF crisis and sought less than \$4bn.

He then challenged the audience to say what would happen after the Soviet occupation — "Who'll be digging the trenches? Who'll be guarding the roundabouts with pitchfork and spades? Who'll be the resistance leaders? The Tories."

It was all great revivalist stuff and the faithful loved it, and him. It is one of the ironies of the Tory campaign that the best crowd-pleasers (Mr Patten, Mr Heseltine and Mr Cecil Parkinson) are all on the outside.

Maxwell rejects Tory advertising

By Raymond Snoddy

MR ROBERT MAXWELL, publisher of Mirror Group Newspapers, said yesterday that he has turned down £300,000 worth of Conservative Party advertising for the Daily Mirror.

The former Labour MP said that he had turned down the offer and Saatchi and Saatchi had tried to book 12 pages in the Mirror for the final days of election campaign. Mr Maxwell said he refused the advertisements because the Conservatives had not been interested in advertising in the Mirror when they believed they were going to "walk" the election.

More importantly, he said, the Daily Mirror had been the only newspaper to unambiguously support the Labour Party.

Alliance attacks 'frittering' of oil revenues

By Lisa Wood

ALLIANCE leaders yesterday accused the Government of frittering away North Sea oil revenues which they described as the "nation's lifeblood."

Dr David Owen, the SDP leader, said the Government had spent North Sea oil revenues on tax cuts rather than investment in education, technology and research.

He said that an unbalanced parliament North Sea oil would be one of the main items on the agenda.

Labour to seek quicker upgrading in schools

BY OUR POLITICAL CORRESPONDENT

THE Labour leadership yesterday acknowledged that standards of educational achievement had risen under the Tory administration but launched an attack on the Government's proposals for improving the quality of schooling in Britain.

Mr Giles Radice, the shadow Education Secretary, said in Birmingham that, at every level of examinations, standards had been rising and that he did not want to share the apprehension of Mr Kenneth Baker, the Education Secretary, that they had declined. He said Labour was, however, concerned to raise standards more quickly because it wanted to see that the potential of every child was advanced and developed.

Mr Neil Kinnock, the Labour leader, agreed with Mr Radice that standards had improved but claimed that the achievements of the educational system had been made in spite of, and not because of, government policies.

He said that, in the face of continuing cuts in funding, the teaching profession had, year on year, managed to improve

the quality and quantity of examination passes. Ministers had showered contempt and insults on teachers by refusing to acknowledge their needs and by suspending their negotiating rights.

The Tories, Mr Kinnock claimed, were motivated by their prejudices against the maintained system and displayed a "permanently ignorant" of everything to do with the way maintained schools operate.

He said Labour was committed to boost spending on education by £500m, a figure which was built in to its £6bn a year recovery programme. The funds would be channelled towards the provision of more teachers and ancillary staff.

Mr Kinnock said the Tories were offering Britain's schools and children "a mixture of a leap in the dark and a kick in the teeth." The Government's proposals, he continued, were muddled and ill-thought out and the full implications had only become clear when Mrs Thatcher had "blurted out" the truth of her "pay as you learn" scheme.

THE ISSUES; HEALTH CARE

Emotional party pleas mask convergence in thinking

BY JOE ROGALY

THE National Health Service has stimulated the most emotional arguments in the election campaign. This is inevitable, since prescriptions are free, and demand is potentially unlimited. The tendency for politicians to outbid one another is built in.

Yet the Labour Party's willingness to juxtapose the illness of a small boy unable to receive urgent attention with the Prime Minister's ability to get private care when she wants it takes the auction further into the land of cynical exploitation than it has travelled for some years.

It is better to look at the facts. On the face of it spending on the health service has grown rapidly under the Conservatives. They claim to have increased it from £8bn planned by Labour for 1979 to £21bn this year—a rise of nearly a third in real terms. They must have meant to include personal social services, since 1987-88 NHS expenditure is set to be of the order of £25bn.

Both opposition parties insist that, whatever the amount, it

has not been enough. Pay in the NHS has risen more rapidly than the Retail Prices Index. Drug costs shoot ahead at their own inexorable pace. Against such measures the growth in the volume of service provided has been far less than a third — possibly not much more than 5 per cent, according to Mr John Hills, writing in The Growing Divide, published by the Child Poverty Action Group yesterday.

The increase in the number of very old patients pushes the cost of service up by at least 0.7 per cent a year. Keeping up with medical advances adds another 0.5 per cent. The cost of reallocating resources from London to the regions, under a programme by the last Labour Government, adds yet more.

The Tories maintain that the savings from greater efficiency — brought about by their introduction of "g management" — will offset some of this. The net effect, however, is that in spite of many extra billions of pounds spent the public perception of a service that is run down has some basis in fact.

Labour proposes to increase the health budget by the rate of inflation plus 3 per cent, although it does not specify where the money is to come from. Part of this expenditure will no doubt be counted within what is referred to in the manifesto as a "priority programme" to create jobs. The promise is that 300,000 new jobs "will improve our health and education services and the neglected community and caring services."

The Alliance says that it will increase the NHS budget in such a way that by year five it will be £1bn a year higher than is being planned by the Conservatives. This probably works out at 2 per cent extra, against Labour's 3 per cent. It is part of the programme costed for the Alliance by outside auditors.

After "cuts" (i.e. spending), the most emotive item on the health service policy agenda is private medicine. Here there are distinct differences between the parties. The Conservatives do not emphasise active encouragement of insurance-based private health care, but the record indicates that the

number of persons covered by such insurance has about doubled, to some 5m, since 1979. That still leaves more than 90 per cent of the population wholly dependent on the NHS.

The Alliance says it upholds the right of individuals to pay for private care, "but we will not allow private medicine to exploit the NHS by using facilities at subsidised cost." Dr David Owen, the Social Democratic Party leader, was even tougher on private medicine when he was a Labour junior minister for health under Barbara Castle.

The Labour Party would also remove subsidies from private patients using NHS facilities. It would begin to phase out pay beds—the cautious language is perhaps a throwback to the historic compromise with the doctors made by Mr Aneurin Bevan when he founded the service. Consultants have always had the freedom to hop between private and public patients at will.

Another emotional issue is the level of prescription charges, which rose from 20p in 1978 to £2.20 per item in 1986. The

proportion of patients paying the charges fell from 57 per cent to 19 per cent in the same period. The reason is that pensioners, children under 16 and people on social security do not pay.

Even so, Labour will start to reduce prescription charges, with a view to eventual abolition. The Alliance will not increase them beyond the rate of inflation. The Tory record suggests that they have no such inhibitions.

They all make promises on waiting lists. The Tories have their "special £50m two-year programme" but do not explain why it has taken eight years to put it in place. Labour offers a speedy reduction, using computers to allocate beds and "encouraging" more consultants to work full time for the NHS.

The Alliance promises to reduce the maximum waiting time to one year within two years of taking office, and then to halve it during the rest of their term. They will appoint more hospital doctors, ask consultants to give priority to their NHS waiting lists, move patients be-

tween districts — and use computers.

All three parties emphasise a commitment to community care — i.e. care in the home or by home visitors — particularly for the elderly or handicapped. Labour and the Alliance propose a special "carer's benefit", although the amount remains to be specified. The Government has failed to provide enough cash to build up community care while running down institutional care.

There remains a list of specific propositions, some held in common. Thus both opposition parties propose "well-women clinics" for screening for cervical or breast cancer; propose to "complete the network" of computerised call and recall screening systems.

Labour will step up "the fight against AIDS"; the Alliance will ban advertising of tobacco products; the Tories will continue to put ancillary services out to competitive tender.

Thus the cold facts show that behind the emotional appeals on the National Health Service the differences between the parties are not profound.

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Carter/Almeida Festival

Andrew Clements

Elliott Carter's Fourth String Quartet was new last year, given its first performance at the Miami Festival in September by the Composers Quartet, one of the three groups that jointly commissioned it. A later performance at Vassar College in New York State was described here by Andrew Porter, who hailed it as "a major work, destined to enter the international repertoire, as its predecessors have done." On Sunday evening it arrived at the Almeida Festival, played with a panache and precision by the Arditti Quartet that might have been the product of many years' familiarity.

As Porter observed, the Fourth Quartet continues the more relaxed vein of expression that Carter first opened in Triple Duo and Pentad ideas are given space in which to articulate themselves, textures and harmonic aggregate are less densely packed. Though the idea of casting the four instruments as solo players, each with a well-defined musical character and personal harmonic and rhythmic world, harks back to the Second, there is much to recommend it. The ending of the new score — high sustained chords in the violins while viola and cello break through the serenity with more violent gestures — seems almost like a conscious reminiscence of the still centre of that earlier work to be found in its slow movement.

The Arditti had begun their programme with Carter's Third, and the opportunity to hear the two quartets in such close proximity only enhanced the contrast between them: where the Third demands attention from its opening bars and never lets go, the Fourth allows more room for breath.

It is punctuated with silences of varying length—some of them barely marked, others clear points of articulation—though the division into four movements is less than usual. The impression is of a structure elegantly and exactly tailored to its material, whereas the Third seemed barely able to contain everything the composer had poured into it.

In many ways the result is the most approachable of the quartets in the sense that its landmarks are well defined, its gestures lucidly presented. How many quartets take it into their repertoire remains to be seen, though few, I fancy, will neglect it.

In an earlier concert, members of the Arditti with pianist Yvonne Mikhaeloff had given a programme of works by the 66-year-old American composer Ralph Shapey. Shapey has forthright views on the current condition of American music and society, views with which he regaled his audience in a pre-concert talk. These have not helped his cause in the establishment over there, any more than the moratorium he imposed on performances of his music in 1969 as a protest against what the programme book described as "the steadily deteriorating ethical standards in the music world and the world in general." That decline, Shapey revealed, he identified with the Vietnam War and the embargo was lifted in 1976.

A personality so convinced in its views ought to generate some highly flavoured music, and some of Shapey's earlier scores have acquired a reputation for rebarbative dissonance coupled with grandly aggressive gestures, kindling hopes of some kind of latter-day Carl Ruggles. But little of that was conveyed by the Almeida selection; only a String Trio from 1963 made a really satisfying whole, with material and structure consistently shaped. The more recent pieces had far less substance: the language is akin to that of Stefan Wolpe, but lacks his intellectual rigour and sheer emotional weight. What had promised to be one of the most intriguing elements of the Almeida season failed to catch fire.

I concur with everything Andrew Clements wrote last week about Wolfgang Rihm's 8-year-old opera *Jakob Lenz*, and on Saturday we were further enlightened by a hyper-rich prospectus of Rihm's chamber music, from his 1977 *Music for 3 Strings* through his *Fremde Szenen* (foreign scenes) for piano trio to his Quartet no. 3 ("Veränderungen" not just "variations" but "transformations"). Any other festival that finds itself with a sudden hole should fill it at once with Rihm or some of the Almeida chamber music. Such superbly prepared performers deserve longer runs. Mikhaeloff at the piano, and the Arditti Quartet outdid themselves.

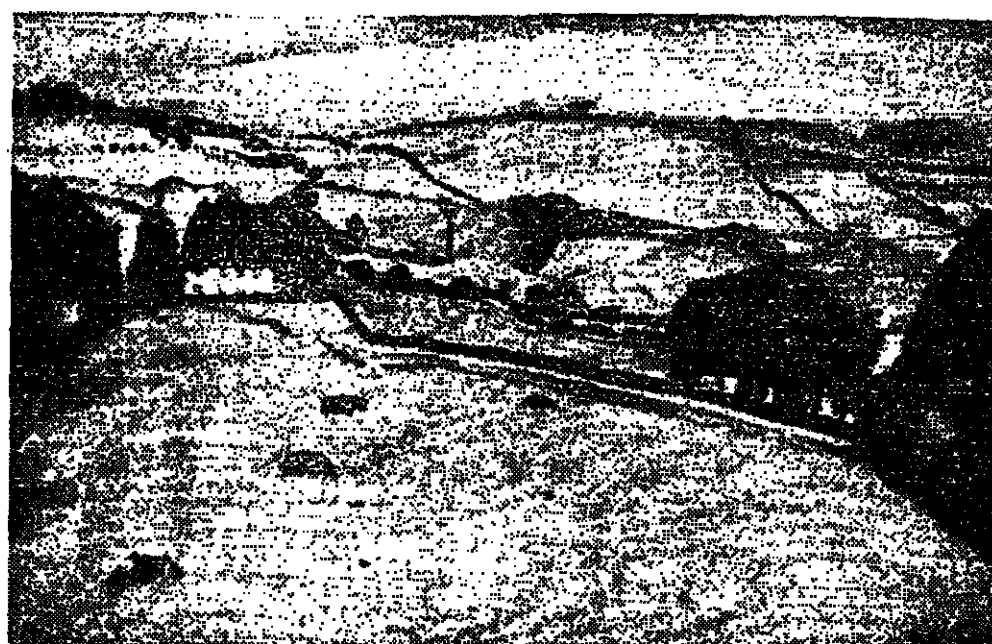
Close to an hour long, *Music for 3 Strings* is a sort of epic musical self-examination. The three movements of Part 1 begin by testing out intervals, close-position chords, uneasy balances (the Arditti players took up each other's notes with uncanny precision), all in an atmosphere of fraught intensity, and later a stabbing rhythm is added. Counterpoint arrives only with the winding "canzonas" of Part 2, of which the last shivers away on a still height. Part 3 undertakes some searching recapitulation, but its dramatic mood is more and more towards protecting rhetoric—angry pauses, truncated repetitions, a long, obsessive final ostinato (something which becomes a tic in later works).

Rihm's piano trio in the three *Fremde Szenen* always remembers its romantic history, while rebelling against it. The first is again concerned with diatonic intervals — handled with rigorous care, like live grenades — but acquires a dance-time at the extreme ends of the keyboard, like Shostakovich's in his piano trio. In the second, all the patented devices of Schumann are flung into the riot and dislocated; not parody, but furious caricature, and a somewhat crazily dense score. The third *Szene* assimilates the manners of middle-period Verdi, too, and struts them balefully.

With the Seventh Quartet we arrived at a more mature, "pure" Rihm again (plus woodblocks, whacked at junctures by some of the players: the last cello-statement took place under relentless bombardment). By now there is as much higher as lower in his music; argument; there is a well-established fund of Rihmish gestures, and the prolific composer draws upon it semi-automatically. For the music to work, performers like the Arditti are essential, and may be also chamber-intimacy — Rihm's orchestral pieces do not seem to seize one's attention with comparable force.

Certainly Rihm's "Bann, Nachschwärmer!" made a limp impression in the organ recital by Christopher Bowers-Broadbent. This sober radiance of Arvo Pärt's piece for Speyer Cathedral, *Annun per Annum*, was much more securely achieved. Twenty minutes of ostinati from Morton Feldman, *Principal Sound*, seemed intolerably arid after a surfeit of Rihmian ostinati. There were colourful but slight pieces with tape by Krenek and by Douglas Dougherty.

David Murray



Detail from "The Swaites," c 1923 by Winifred Nicholson

London Galleries/William Packer

Latterday impressionists

Impressionist is no exact term: we use it after the fashion of Humphry Dumpty, to mean "just what (we) choose it to mean—neither more nor less."

The Tate Gallery is giving a small retrospective exhibition (until August 2) of the work of Winifred Nicholson, who died in 1981 at the age of 87. She was Ben Nicholson's first wife, by whom she had three children, and remained married to him throughout the 1920s when he first became something of a force in British art. She kept in touch with Nicholson after their separation in the early 1930s and continued active as a painter until her death, but the period of her marriage—when she was most directly concerned with the activities of an industrial avant garde and even something of a force herself—was when the character of her work was set and much of her best work done.

Impressionism, and post-impressionism, fauvism and cubism, expressionism and surrealism had come and gone by then, and the Nicholson would hardly have thought of themselves as more latterday impressionists. But now when we look at that early work, including the forceful, knowing and elegant paintings that came from their interest in the *faux naïf*, their association with Christopher Wood and discovery of Alfred Wallis, it is impressionism in its wider sense which comes most readily to mind.

There might not be quite the particularity of mood and observation that comes with thorough-going impressionism; there is much in the work of the hedonistic, ideographic painter of the late 19th and early 20th centuries who, like their peers in Canada and Scotland to Finland and Japan, studied abroad and in particular Paris. The American classification is loose enough here for even the Irish-American-Canadian Shannon to be claimed within it.

These cosmopolitans make for an heterogeneous bunch, more interesting as individuals than for the putative connection. By this aperitif would warrant a fuller study, from the Whistlerian Childé Hassam, Merritt Chase and Prendergast to Twachtman and

Vonnah and the later, more obviously expressionist Sloan and Bellows. Small as this show is, each of these artists is represented by extremely fine examples, especially the flickering autumn landscape of Robert Vonnah. This show is most welcome with, we hope, much more to come.

In setting the line back through their own work directly to Degas, Sargent and Whistler worked as great an influence upon British as upon American painting, but in England there is Degas' other pupil to consider, Walter Sickert. Though much discounted in recent years his influence, filtered through Camden Town and on down the Euston Road, remains an honourable tradition within which serious and most accomplished artists still work. Ken Howard is one of them, whose work grows stronger the more we see of it.

His latest show, of landscapes and studio interiors, has had all too short a run at the Oscar & Peter Johnson Gallery in Lowndes Street SW1 (until June 12), but it is strongly recommended for the demonstration it makes of direct and honest observation and beautiful formal painting. He continues to explore his obsession with his studio interior and the figure seen against the light, but his large beach paintings come as an impressive surprise. Most remarkable of all, however, for the freshness and simple authority which they bring to what can easily be the most trite and hackneyed of subjects, are the watercolours of Venice, homages to Whistler and Turner that are quite his own, tiny tours de force.

The circumstances that brought all three to first person prominence in the space of a single fortnight in 1976, are themselves revealing: the second marriage of Franz Joseph II, celebrated at Schönbrunn, for which Gluck (an employee of the Habsburg court) wrote the opera *Die Entführung aus dem Serail* (1781). Colletti's libretto is feeble, and runs badly dry of motivating force in the second of its two acts (of the three wedding works *Telemaco* alone failed, and was not repeated). In spite of this, the score bursts with quintessentially Gluckian dramatic strokes and shortcuts, with the inspired melodic plainness in which character and emotion are revealed (the sorcerer Circe comes early in a grand Gluck line of glittering, low-toned female portraits).

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The Beaux Arts Trio are one of those rare and ungettable chamber ensembles who live, eat, sleep and breathe music-making from every pore. Nothing they play is dull or routine as a result, they may have good nights, and they may have better nights, but every performance they give bears the mark of an unflagging passion and commitment to their task. Their account of Beethoven's op. 1 No 3 at the start of the evening on Friday had a marvellous freshness and intensity, and they continued, allowing themselves hardly a pause for breath, with Ravel's trio: bright

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Music for a royal wedding/Radio 3

Max Loppert

The 200th anniversary of the death of Gluck, one of the great creators of opera, falls in November; the date is being ignored by all the main British opera companies to their discredit. But not by the BBC, to its great credit: this weekend Radio 3 covered itself in Gluckian glory by offering on two successive days three works — a full-length opera seria, a one-act comic *serenata*, and a ballet score — all three of which have been to the fore of its first performance in modern times (as all three are in the Bärenreiter Gluck Edition, it's unwise to be too firm about such a claim). All three are works of high quality, and all three new light on a composer too easily fixed in a single music-history categorisation, that of operatic reformer. It was an exciting weekend.

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Beaux Arts Trio/Wigmore Hall

Dominic Gill

Friday's Wigmore Summer Night recital should have been nothing more than one of the happily and regularly predictable appearances of the Beaux Arts Trio that have so delighted London audiences for more than 30 years. But it was a sad occasion too, for it marked the departure of the ensemble's cellist Bernard Greenhouse, and thus the last London appearance of the piano trio as we have known it constituted which means the end of a public recital in the British Isles.

My colleagues and I have written so frequently on this page of the Beaux Arts and have described their virtues in such plentiful detail—and their work is also widely known

and recorded — that a valediction in the form of an introduction is hardly called for. Enough to say that their final recital was a triumph, and that it will forever do justice to their memory.

The Beaux Arts are one of those rare and ungettable chamber ensembles who live, eat, sleep and breathe music-making from every pore. Nothing they play is dull or routine as a result, they may have good nights, and they may have better nights, but every performance they give bears the mark of an unflagging passion and commitment to their task. Their account of Beethoven's op. 1 No 3 at the start of the evening on Friday had a marvellous freshness and intensity, and they continued, allowing themselves hardly a pause for breath, with Ravel's trio: bright

toned, buoyant, wonderfully deft and observant in every detail — the "Pantoum" especially, and the delicately animated finale, alive with Scarbo-like fantasy.

One's only secret regret was that the Beaux Arts did not end their virtuoso programme with a performance of the Chalkovsky trio, which has always been one of their principal glories. But their account of Dvorak's F minor trio op 65 was so full of life and energy, so bright with vivid colour and so full of soaring rhythmic impetus, that it was no more than a passing thought. A pair of brief encores allowed Bernard Greenhouse to remind us, as he had already done in the Ravel, of his conspicuous candour in the middle cello register; and then, to a standing ovation, they were gone.

American play wins Tony Award

On Sunday night in New York the Tony Award for the best play went to an American playwright, August Wilson, for *Fences*, compared with a sweep of the other major categories by British nominees.

But in the only seriously contested category, *Fences* confirms the effort to encourage young American playwrights with an interest in serious themes at the expense of yet another worthy British import: Christopher Hampton's *Les Liaisons Dangereuses*, which got no Tonys, while *Fences* walked off with four; for best director (Lloyd Richards), best leading actor (James Earl Jones) and best featured actress (Mary Alice).

The musical winners were much more predictable, with *Les Misérables* getting eight,

including best musical, best music, direction, book and featured performances. *Me and My Girl*, a solid hit that opened at the very beginning of the season last summer, won three awards, including best actor for Robert Lindsay and best actress, Maryann Plunkett.

The best revival was Arvin Brown's *Long Wharf* production of *All My Sons*, a moving postwar testimonial to Arthur Miller's strong characters and involved plots. Despite a seriousness to the ceremony that for the first time assuaged glitzy videos, the Tonys once again reminded Americans of how much its theatre life depends on imports from subsidised British companies.

Frank Lipsius

Arts Guide

Opera and Ballet

LONDON

Royal Opera, Covent Garden: Claudio Domingo conducts the *Don Quixote* (he was the first Rodolfo of the Copley production, in 1974), alongside Irena Tokody, Thomas Allen, and Rosamund Hing (house debut); Giuseppe Patane conducts the new *Manon*, with Julia Mignones and Neil Shand, conductor Jeffrey Tate. Performances June 8-13 form the latest series of Midland Bank-sponsored Proms, with 700 standing places made available in the stalls.

English National Opera, Coliseum: Shostakovich's *Lady Macbeth of Mtsensk*, in the new production by David Pountney, conducted by Mark Elder, is one of the most spectacular shows the company has put on in recent times. Josephine Barrow, giving one of the greatest performances of her career, leads a splendid cast. Two other Pountney productions, both of them rather less rewarding artistically, continue in repertory: the rubbish-dump *Carmina*, with Jon Rigby and Arthur Davies, and the Gielgud Scarfe-designed *Orpheus in the Underworld*.

PARIS

Merce Cunningham Dance Company followed by Hamburg Opera's ballet

with John Neumeier. America's most European neo-classical choreographer Theatre de la Ville (8742477)

Der Fliegende Holländer followed by American choreographer's *Les Femmes d'Alger*, Alvin Nikolais, David Parsons, Daniel Erzaow, William Forsythe. Paris Opera (42665022).

Boris Godunov in a grandiose performance by artists of the Warsaw Opera at the Palais des Congress (4156 1335).

WEST GERMANY

Frankfurt, Opera: Eugen Onegin has Benjamin Luxon, brilliant in the title role. Don Giovanni, conducted by Peter Hirsch brings Faye Robinson, Susan Roberts, Benjamin Luxon and Franz Mayer together. Parsifal in Ruth Berghaus' production with Gail Gilmore, Walter Raffeiner and Manfred Schenk. Die Soldaten returns with Nan Christie, Ilsa Gramatzki, June Gard and William Workman. Busoni's rarely played *Doktor Faust* features Günter Reich in the title role beside William Cochran, June Gard and Heinz Hagenstange singing other parts. Die verkaufte Braut rounds off the week.

Cologne, Opera: Das schlaue Fuchschlein, newly produced by Harry Kupfer, has fine interpretations by Roland Hermann, Eva Tausky, Janice Hall and Randall Orland. Tannhäuser is an event of more than passing interest with Wolfgang Brendel, Klaus König, Matthias Hölle, Nadine Secunde and Valentin Jahr. The week also features Andrea Chénier.

Stuttgart, Württembergisches Staatstheater: The Magic Flute has Ralf Hübner, Mathias Hille, Peter Seidler and Raymond Wolansky. Martha is a well done repertoire performance. Madame Butterfly has Maria Russo, Carmen Mutterer and Wolfgang Schöne in the main parts. Also offered Die Fledermaus.

Munich, Bayerische Staatsoper: There was much applause for Jean-Pierre Fouchère's production of *Turandot*, when it opened. The cast includes Ghena Dimitrova, Mirella Freni, Lando Bartolini and Nicolai Ghiaurov. Le Cenerentola stars Doris Soffel, Julie Kaufmann, Chies E. Anzjö and Alberto Rinaldi and the Scala choir. Die Gezeichneten has particularly strong cast with Ute Vinzing, Lisbeth Balsev, Brigitte Fehsbeider, Rene Kollo and Marti Selman. The Magic Flute closes the week.

ITALY

Milan: Teatro alla Scala: Händel's *Cardenio* produced by Wolfgang Sawallisch and directed by Jean-Pierre Ponnelle, with costumes by Pet Halmes. The cast includes Waltraud Meier, Cheryl Studer, Donald McIntyre and Robert Schunk, with the Munich Staatsoper choir. (80 81 26).

Naples: Teatro di San Carlo: Santa Lucia, has fine interpretations by Roland Hermann, Eva Tausky, Janice Hall and Randall Orland. Tannhäuser is an event of more than passing interest with Wolfgang Brendel, Klaus König, Matthias Hölle, Nadine Secunde and Valentin Jahr. The week also features Andrea Chénier.

her husband, Beppe Meneghini of The Three Sisters (383 329).

Torino: Teatro Regio: Barber of Seville directed by Michel Hampe, with scenery by Ezio Frigerio and costumes by Mauro Pagnano. Bruno Canino conducts a cast including Luciano Serra and Enzo Dara. (548 000).

Venice: Teatro al Fenice: Lohengrin conducted by Gustav Kuhn in Pier Luigi Pizzi's production, with Gail Gilmore, Peter Hofmann, Hans Sotin and Franz Ferdinand Nentwig (710 181).

Bologna: Teatro Comunale: Puccini's *Samartiani* production of *La Rondine* conducted by Thomas Fulton, with Fiamma Izzo d'Amico, William Matteucci, Paolo Cui and Bruno Beccaria (339 999).

Florence: Teatro Comunale: (5th Maggio Musicale): Monteverdi's *Return of Ulysses* conducted by Bruno Bartoletti and directed by Giulio Chazetini, with scenery and costumes by Umberto Santucci. The cast includes James King, Alessandro Vassallo, Julia Hamann, Maria Salway, Richard Stilwell and Martine Dupuy (271 9236).

NETHERLANDS

Amsterdam, Muziektheater: The Netherlands Opera presents *Die Fledermaus*, directed by Johannes Schaal and designed by Andreas Behrhardt, with the Concertgebouw Orchestra under Nikolaus Harnoncourt. The National Ballet choreographed by Jörg Butz, and soloists

La Bohème/Covent Garden

Max Loppert

La Bohème is one of the most works the Royal Opera commonly does well. On Saturday, at a gala (in aid of the British Kidney Patients' Association and the house itself) marking the start of the latest revival, the company did it uncommonly well. Three of the John Copley production's original (1974) cast had been reassembled: Plácido Domingo, Gwynne Howell, Thomas Allen (Schaunard then, Marcello now). One of the most experienced of the day's Italian opera conductors, Giuseppe Patane, was back in the pit.

It was not exactly a youthful, pointed, fresh-eyed dramatic reading such as the regional companies have recently been showing us; the age of the leading men and the wide canvas of the staging (now in the care of Richard Gregson) came at an inevitable "big-house" aggrandisement of scale. But on its own terms it was a most beautiful and involving account of the opera—weighty and crude, based on Puccini's stinging but tenderly detailed and as well as

strong and certain. Mr Allen's Marcello summed up the tone: an easy master of the music and the stage space (his comic timing is, as always, a delight), but never casual in his confidence. Home Tokody, returning to the title role, follows Julia Varady and Eva Marton in the line of singers from Eastern Europe who have so noticeably brightened this season's Royal Opera array. She is small, intense, fine-featured, vulnerable, with a heartbreaker of a smile; the low register has a Scott-like smoky sensuousness, the top is occasionally equally (also on the Scott model, though still contained), the way with words is exquisitely potent. The Hungarian soprano is a colourist who finds the inner emotional rhythm of Puccini's phrases; of all the singers on stage she seemed to inspire Mr Patane's collaborative enthusiasm most, and in Act 3—the peak passage of the evening—the two made "D'onde lieta" one of the most tenderly detailed and moving this production has offered.

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Domingo, in fine voice (apart from a hasty retreat from the climax of a downward-transposed "Che gelida manina"), does not discover in Rodolfo one of his most fulfilling assignments. The presence is warmly genial, not ardent or romantic; the strength of pain he is now able to suggest proves almost more powerful than the role can properly bear (an Otello-like howl of distress on *Mimi* Act 4 entrance was alarmingly visceral). But his mature artistic authority carries its own irresistible aura and in Act 3 he too was at his most specifically expressive.

A lively new Schaunard (Roderick Earle) and Musetta (Rosamund Hing) in her house debut, pinpoint-accurate, not ideally vivacious; the quiet excellence of Mr Howell's Colline has been praised many times before, and needs to be once again. This week's two *Bohèmes*, part of the latest Midland Bank Proms, will also be relayed onto a screen for the benefit of viewers in the Covent Garden piazza.

Saleroom/Antony Thorncroft

What goes up...

A rare signed miniature by Nicholas Hilliard of Edward Seymour, Earl of Hertford, sold for £48,200 yesterday at Sotheby's in an anonymous buyer. The tiny miniature, 1 1/2 inches high, was dated 1572, making it a very early example of the work of this great name among British miniature artists. Sotheby's sold it 10 years ago when it realised £70,400, confirming that works of art, even of the highest stature, can fall in price, although that auction was slightly exceptional, with two keen buyers fighting for the miniature. The price yesterday was close to Sotheby's top estimate, reflecting the good condition of the piece.

The market for miniatures is modest, but Sotheby's auction did quite well, totalling £234,421, with 5.43 per cent un-sold. A portrait of Miss Alemlia Darrell, captured by John Smart in 1784, was just above target at £10,450 while a later work of Smart, dated 1809, this time of Colonel Charles Reynolds, made £9,030.

A miniature of Thomas Weld, a young man who renounced his wealth in middle age to join the Church later to become a Cardinal, sold for £8,600; it was painted by Augustin, and dated Paris 1819. The Swiss dealer, Bucher, paid £8,280 for a por-

trait of a lady painted in 1776 by Jean Laurent Mosnier.

Meanwhile Christie's was disposing of Chinese ceramics, the first of a series of auctions designed to tempt the collectors arriving in London for the International Ceramics Fair and Seminar later this week at the Dorchester. The morning session totalled £578,295, but with 25 per cent unsold.

A Yuan blue and white baluster of comparatively rare shape and dated to around 1350 sold for £154,000 to the Hong Kong dealer Robert Chang, who is exhibiting at the Fair. The price was near the lower end of the estimate. A pair of red, green and yellow lacquer table chests of the 17th century, sent for sale by Princess Alice, Duchess of Gloucester, was bought by the Japanese dealer Daijindo for £41,800, as against a top estimate of £7,000.

A London dealer S. Marchant, paid £40,700, at the very bottom end of the estimate, for 11 famille verte monnaie cups. The series is missing the first and fifth months, and the fact that there are two of the third month is of little help. Covered in flowers they are very decorative. A pair of Doucai wine cups went for £23,100 to the Hong Kong dealer, Mr Chan. The price was twice the estimate.

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Tuesday June 9 1987

Cohabitation under strain

IT IS VERY difficult to see what Mr Jacques Chirac, the French prime minister, has achieved by last week's dramatically-staged confrontation with his minister of culture, Mr Francois Leotard, unless the exact opposite of what he set out to achieve. He presumably intended to reassert his authority over the Government by calling a vote of confidence in his cabinet, but he has ended up allowing Mr Leotard to remain in the Government essentially on his own terms.

Openly critical

The irony is that the main thrust of the Chirac campaign was directed against Mr Barre, and that if Mr Leotard were to stand for president next year he might actually improve Mr Chirac's chances of being elected. Mr Chirac's own Gaullist party, which has a taste for undivided power and like to work on the basis: "Whatever is ours is OK, whatever is yours must be discussed."

Challenges for City regulators

UNTIL NOW, most criticism of the Financial Services Act has centred on its initial implementation, and there is still some way to go in terms of the approval of the rule-books of the self-regulatory organisations, and the processing of membership applications.

But increasingly the debate is now going to be focused upon the operation of the Act in practice, and Mr Charles Goodhart, a former senior Bank of England adviser, has set the tone with an attack on the high costs being imposed by the Act on Britain's financial services industry.

Framework in place

That is, after all, the point of its self-regulatory emphasis, with powers delegated by the Secretary of State for Trade and Industry to the Securities and Investments Board and then, in a second step, to the group of SROs.

The framework for sensitive implementation is there. But how will the standards be set and will the right kind of people set them? Mr Goodhart emphasises the likelihood that regulators will "seek an easy cohabitation with the regulated."

There will be an emphasis on the establishment and discrimination against the innovators, who will usually be small, risky and probably irritating operators. They will focus particularly on the gaps and margins of the regulatory system.

ment, leading Mr Leotard and his friends to doubt the strength of Mr Chirac's commitment to "liberalism" in both the economic and the social-humanitarian sense. When the student crisis erupted last winter "Leo's gang" were openly critical of the Government's university reform bill, and Mr Leotard himself was one of those who put most pressure on Mr Chirac to withdraw it.

Pressure maintained

On issues of substantive policy there is no reason to think that Mr Chirac disagrees strongly with any of Mr Leotard's views. His problem is to reconcile opposing views within his Government, and indeed within his own party, under the triple pressure of Mr Jean-Marie Le Pen's National Front on his right, the Socialists, exploiting the prestige and false neutrality of President Mitterrand, on his left, and of Mr Barre's "I told you so" from behind his back.

His choice of the authoritarian Mr Pasqua as interior minister was a deliberate bid to neutralise the National Front by robbing them of their strongest propaganda themes—immigration and law-and-order—and to balance the appointment of liberals or "wets" (as we should say) to important posts in economic and social policy. But Mr Le Pen has maintained his pressure and Mr Pasqua's over-reaction to him in xenophobic rhetoric have caused increasing unease among the liberal wing of the Government, expressed forcefully last month by the trade minister, Mr Michel Noir.

That explains, but cannot excuse, Mr Chirac's irritability and his over-reaction to remarks which were probably not intended as a direct challenge to his authority, but which he succeeded in transforming into one. The net effect is to demonstrate once again how difficult it is to be a President, to hold a governing majority together when its leader is not the President but a presidential candidate, and also to cast greater doubt on Mr Chirac's own fitness for the role of national chief, as opposed to that of chief of staff which would be that of a French prime minister under more normal circumstances.

But Mr de Mita's greater mistake was thought to be that he gave the ideological edge to a traditionally business profile. Repeated stress on the need for economic austerity and a value tilt in favour of the entrepreneur upset the Catholic working class, the small shopkeepers, artisans and the pensioners, who are the bedrock of Christian Democrat support. The

another level, Sir Gordon Borrie has a warning brief and having pronounced critically upon SIB's rules he is now ready to do the same for the SFOs.

There will be a heavy burden upon the public representatives on the SRO boards. They will need to acquire a degree of technical mastery and devote considerable time to their task, with uncertain rewards. They will need, in fact, to have many of the characteristics of whistleblowers and troublemakers, but it is hard to see such people gaining the appointment in the first place.

Then there is the question of the quality of the executives of the regulatory bodies. To the extent that they are seconded from member organisations they will enjoy expertise but their independence will be suspect.

Understandable doubts

If they are career regulators they may lack the insights of the practitioner. At worst, SRO executives could be concerned at the need to build a sympathetic reputation within the industry so that they can look forward to a more lucrative second career, perhaps as compliance officers—just as Inland Revenue inspectors can double their money by going over to the other side and becoming advisers to tax-payers.

Mr Goodhart's doubts are therefore understandable, but his alternatives are unconvincing. To suggest that the costs of regulation will be greater than any conceivable losses on the part of investors is to look at the problem like an economist, and not like a politician who has to bear the brunt of public complaint.

There is a danger of over-regulation exists, and in some circumstances it may be wise to lighten the burden and easing the balance back towards stronger competition and, as far as the investor is concerned, the principle of caveat emptor.

The general point is that the successful operation of the system of regulation set out in the Financial Services Act and in SIB's rules will require strong, brave leadership and highly sensitive implementation. But it is far too early to assume that these conditions cannot be fulfilled under the regulatory framework which is now being put in place.

A plethora of parties is lining up for Italy's election, but real choice remains illusory, says John Wyles



BETTINO CRAXI

The parties' share

	1976	1979	1980*	1983	1985*
DC..... Christian Democrat	38.8	38.3	36.8	32.9	35.0
PCI..... Communist	34.4	30.4	31.5	29.9	30.2
PSI..... Socialist	9.7	9.8	12.7	11.4	13.3
PSDI..... Social Democrat	3.4	3.8	5.0	4.1	3.6
PLI..... Liberal	1.3	1.9	2.7	2.9	2.2
MSI..... Neo Fascist	6.1	5.3	5.9	6.8	6.5
Radical	1.1	3.4	—	2.2	—
New Left	1.5	2.2	2.1	1.5	1.5

* Regional elections, where no results for Chamber of Deputies.

Just like old times

Policies only become relevant in the post-election bargaining on a coalition programme

have an absolute majority in the Chamber of Deputies, policies only become relevant in the post-election bargaining on a coalition programme.

But the absence of policy debate robs the campaign of both drama and colour, notwithstanding Cicciolina and a coded intervention by the Pope. Party leaders have been at it since the middle of May, but there are only so many ways in which the same speech on who should lead the next coalition government can be delivered. By the final week of campaigning, column inches devoted to their utterances were much reduced.

For the student of tactics, however, the campaign has carried plenty of interest not least because voting behaviour is becoming less static. Broadly speaking, the Communist advance of 1980-76, which carried the party from 27 per cent to 34.4 per cent of the votes, has been halted and the party's leadership will be happy if it can hold on to the 29.9 per cent of 1983.

Similarly, the Christian Democrat grip on the country—only the PRI in Mexico and the liberals in Japan have held elective power for so long—has been slipping since 1968, although the party did make a comeback in the 1985 regional elections.

With the two major parties' share of the vote sliding from

one dominated by the Christian Democrats and the other by the Communists. And therein lies the explanation for some extremely bitter invective.

Mr Ciriaco de Mita, the Christian Democrat leader, fears that continued growth by the Socialists and Republicans would put paid to his party's recovery. His greatest problem

Forlani—Mr de Mita gave a poisonous launch to his campaign by labelling the Socialists as "untrustworthy and dangerous." He has also ridiculed Mr Spadolini and his Republicans for their pretensions to arbitrate between the Christian Democrats and the Socialists in the post-election negotiations.

In a reversion to an old Christian Democrat tradition, Mr de Mita is urging the voters to see the poll as a straightforward "good and evil" choice between the Christian Democrats and the Communists.

With some dissonance, however, Mr de Mita also says he wants to recreate the five-party coalition formula (Christian Democrats, Socialists, Republicans, Social Democrats and Liberals) which prevailed after the 1983 poll. But this time his party, as the largest one, would hold the premiership.

But now parties which were merely satellites in the Christian Democrat constellation are no longer ready to slot into their allotted orbits. Only the Liberals are backing Mr de Mita; both Mr Craxi and Mr

73.2 per cent in 1976 to 62.8 per cent in 1983, the main beneficiaries have been the Socialists and the Republicans, but also the Radicals and new left parties.

To a large extent, however, votes have shifted within rather than between the two blocks,

is that no possible coalition can have a secure majority without the Socialists. Mr Craxi will continue to wield this pivotal power to his party's greatest benefit.

To the obvious disquiet of some of his colleagues—like party president, Mr Arnaldo

As fear subsides, the church steps in to rally the faithful

IF ANY REMINDER were needed of the importance of this election to the Christian Democrat Party, it came on May 8 in the form of a declaration from Italy's Catholic bishops. Ostensibly urging the faithful to avoid the temptations of abstention, it also counselled them to stay loyal "to the Italian Catholic tradition of unitary commitment."

A trifle verbose, but none the less a clear signal from the hierarchy in favour of a vote for the party which has dominated every Italian government since the war. It was, moreover, a distinct echo of the church's intervention before the 1985 regional elections, the first such utterance for many years, after which the party's share of the vote was resurrected from its historic low of 1983.

Mr Ciriaco de Mita, the Christian Democrat leader, is trying both to consolidate the recovery of 1985 and to avoid repeating the mistakes of 1983. Then, it was said, he fought too personal a campaign at the expense of the local barons, particularly in the south, who are so efficient at getting out the vote.

But Mr de Mita's greater mistake was thought to be that he gave the ideological edge to a traditionally business profile. Repeated stress on the need for economic austerity and a value tilt in favour of the entrepreneur upset the Catholic working class, the small shopkeepers, artisans and the pensioners, who are the bedrock of Christian Democrat support. The

electoral price was exacted evenly around the country—in north and south, in rural and urban areas.

Mr de Mita is repeating the formula in this election which paid dividends two years ago. He is stressing that the Christian Democrats are a lay party, inspired by Christian values, and the safest guarantor against the capture of Italian democracy by the Far Left. Paradoxically, however, the political weakness of the Communists is at the heart of the explanation of Christian Democrat decline. The Christian Democrats' enormous strength in the first 20 years after the Second World War was based on the largest opposition party being aligned with the Soviet Union.

Christian Democrat policies had to be aimed at limiting working class support for the Communists, partly through stressing Christian values but more through expounding welfare policies, land reform in the south and growing state interference in the economy. By the end of the 1960s, the "economic state" had multiplied, becoming a source of patronage, power and influence for the Christian Democrats since the industries and banks under its control were managed by party men.

At the same time, the Christian Democrats' traditional allies, the Catholic workers and CISL, the Catholic trade union, had become formidable obstacles to the development of class solidarity for exploitation by the Communists. However, the emergence of entrepreneurial and managerial

classes and steady secularisation has gradually weakened the party's political base, particularly in the north where the Republican Party benefited in 1983.

Meanwhile, fear of Communism has become less potent, partly because the party distanced itself from Moscow in the 1970s and rejected the Soviet model completely six years ago, and partly because Christian democracy itself legitimised the old enemy through the celebrated compromesso storico, when the Communists sustained a Christian Democrat government between 1977-78.

As its electoral base has shrunk, the Christian Democrats have had to rely much more heavily on the centre and centre-left parties, particularly the Socialists, to maintain their hold on government. In doing so, however, they have integrated these other parties into the patronage system, allowing them enclaves of power which have loosened the Christian Democrat grip.

Nevertheless, one cannot yet paint the party into an inexorable decline. Mr de Mita has done much to renew it by reducing factionalism, improving local organisations and tackling the most obvious links with organised crime. In addition, a substantial part of the electorate still remains unwilling to risk Communist participation in national government. As long as this prevails, the Christian Democrats may be down, but they are certainly not out.

Labour gains high-tech ground

Some results that will cheer the Labour leader, Neil Kinnock, have emerged from an attempt by Wickes Associates, a specialised high-tech consultancy, to carry a debate on information technology with the British general election campaign.

David Butler, a Labour Party member, and chairman of Butler Cox, the IT consultancy group, polled an absolute majority over his opponents, the Conservative speaker, David Fairbairn, former director of the National Computing Centre, and the Alliance's professor Jean Millar, director of continuing education at Brunel University.

Butler, who says that his role in the Labour Party is limited to a position to question upon some vigorous polemics to win the argument. He castigated the government for the steadily rising trade imbalance in information technology products, and made some play with the fact that Fairbairn would never have had the



"I've just got you a booking for a political rally—of course you won't get top billing"

Men and Matters

chance to run the NCC if the centre had not been invented in the first place by a Labour government in the 1960s.

On the issue of the investment which both the Labour Party and the Alliance believe to exist for small but expanding high-tech companies, Butler also spoke with some authority.

"Investment bankers take a view which is too short-term," he said, "I know because I am one."

That was a reference to his role in the Octagon Group, the venture capital company where he is a director of one of the subsidiaries.

Butler is also a director of Intel, the system management company set up by BL and now a significant force in the factory automation industry.

Intel generates profits of some £8m on sales of £60m, and has recently become the subject of a central element in Conservative industrial policy—to wit, it is being privatised.

"But it will be a management buy-out," says Butler. "So I can live with that."

Serendipity

While the British party leaders fret over the political permutations and combinations possible with more than 600 elected members of parliament, things are necessarily on a smaller scale on the tiny Caribbean island of St Lucia.

Since calling two general elections in April, and failing to get better than a nine to eight majority in parliament, John Compton, the prime minister of St Lucia, has been living in fear of a defection by one or more of his members to the opposition benches.

A migration across the floor

by even one of his flock could have brought down his government.

Compton's concerns have now been brought to a sudden end, for him, most agreeable conclusion. For the defection, when it came, was in the opposite direction. Neville Cenac, who had kept his constituency solid for the opposition Labour party, took a seat among government members of parliament when the new session opened, thus neatly tripling Compton's parliamentary majority from one to three by his short walk.

Came a break in the proceedings, and Cenac was questioned closely by the press. "Broken promises, broken promises" he intoned mysteriously, and refused to be drawn further.

But his migration proved to be not without personal benefit. He was promptly appointed foreign minister of St Lucia.

Election spiked

Meanwhile, chances of the forthcoming local and European parliament elections in Spain making a splash to rival the British and Italian election campaigns, appear to have been even further reduced.

The official state-controlled news agency Efe may not even be in a position to question the campaign and polls.

Three days of strikes are threatened by the agency's journalists. The action is the latest in a series of protests among Spanish public sector workers against attempts to restrict this year's pay increase to 5 per cent—the government's inflation target.

about the conflict as efforts continued to head off the strike threat.

The agency was originally set up by General Franco in the closing stages of the Spanish civil war. It has been experiencing problems ever since the return of democracy—but has not suffered a strike before. The question its critics are asking is: If it is off the streets will its coverage be missed?

Glasnost pasta

An authentic Italian restaurant staffed with Italian chefs and waiters is to open in Moscow as a further demonstration of the new policy of openness launched by Mikhail Gorbachev.

Gino Lunelli, head of the Ferrari company which produces sparkling wine, says the Hostaria Ferrari restaurant will open in Moscow's Mezhdunarodnaya Hotel this week for a two-week trial run.

There will then be an official gala dinner to which the Soviet Prime Minister Nikolai Ryzhkov, and Foreign Minister Eduard Shevardnadze have been invited.

The food, which will include spaghetti, ravioli, and lasagne, will all be imported from Italy along with the wines, and four chefs and four head waiters.

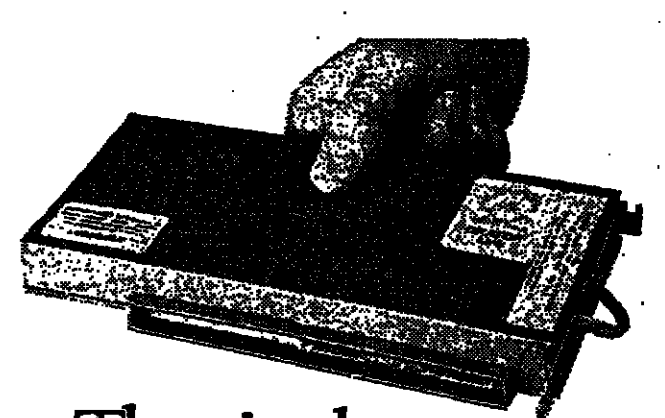
Clients are expected to be western businessmen, diplomats, senior Soviet officials, and any Muscovites lucky enough to get a table after the privileged have been fitted in. Lunelli says that the enterprise is a joint venture with a Soviet state company—and is a direct product of the new policy of glasnost.

Pig power

Election graffiti near Bradford university seems to have been the product of an intellectual fist.

"Pigs can fly... nuclear power safe... voting changes things."

Observer



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SUPERCONDUCTION is a word that has caught public imagination in a way that is rare for the physical sciences. On a par with "black holes" and "supernova". How scientists discovered this property in coal-like fragments of ceramic has become a legend in less than six months.

Less well known is the fact that Britain has a long and honourable record in the technology of superconduction, reaching back to the 1930s. Most conspicuous is the way Oxford Instruments has harnessed it to dominate a world market in superconducting magnets for medical scanners using the phenomenon of nuclear magnetic resonance (NMR).

Yet as late as early February, Britain's science community apparently had failed to catch on to the significance of "high-temperature" superconductors, operating much nearer normal temperatures than anything being manufactured today. The chairman of Britain's leading science funding agencies were themselves unaware of the excitement and still under no pressure for funds to catch up.

Pressure came only after the mid-March meeting in New York, when international scientific excitement spilled over in what one US physicist called "the Woodstock for physics". Over a thousand people turned up—but no one apparently from Britain.

Now there is talk of the Science and Engineering Council finding £200,000 for universities to start some British research. It already requests that total £2m. With everyone belatedly crying "me too", the cash is likely to be spread widely and far too thinly.

Superconduction thus starkly illustrates the central problem of science in Britain. For a quarter-century it has been wrestling with the problem of making science work more efficiently with and for the economy. It began with the much misquoted speech of Harold Wilson, in 1963, when he spoke of "the Britain that is going to be forged in the white heat of this revolution".

Sadly, the fervour for science was soon subsumed into more pressing problems of the economy. However, by killing off some of the more ambitious of the more ambitious of the day—the TSR2 bomber and the supersonic jet—in 1965, for example, his government might claim at least to have begun to address the central problem.

This problem is simply that Britain's desire to be into every existing field of science and technology has long outstripped its resources. As the 1984 Labour Government recognised,

Britain simply did not have the resources to make a success of all the pioneering aviation projects it had spawned. So it made choices: the subsonic jet—jet which still needed another four years of research and development before entering service as the Harrier—but not the much more ambitious supersonic version.

During the 1980s the body which has wrestled with such choices has been the Advisory Council for Applied Research and Development (Acad), the government's technology

someone would plead so eloquently for its retention that the idea would be dropped.

The problem was starkly exposed by the House of Lords Select Committee on Science and Technology in 1982. As a result, Sir Henry Chilver, Acad's chairman at the time, set off in a fresh direction. Instead of trying to find projects to stop, Acad sought to identify projects Britain should be pursuing for sound economic reasons. The rationale was that if British scientists were deliberately encouraged to

choices would be made, closely allied with an eminent academic institute to give it extra intellectual muscle.

The vital point about this proposal is that the new machinery would view British science as a whole, in a way that no single body including Acad—does today. It would try to sort out national priorities and advise or cajole the government at a high—perhaps prime ministerial—level. It would pose such questions as these: Is Britain getting a good economic return for the 55 per cent

For the past year the Cabinet Office has wrestled with the fine detail of this proposal. How far it has progressed may be gauged from the reference in the Conservative Party's election manifesto to ensuring "that government spending is firmly directed towards areas of high national priority," by extending the role of Acad, drawing upon the full range of advice from the academic community and from business.

The idea is that Acad shall expand into Acost, the Advisory Council on Science and Technology, spanning the spectrum of British science. Industry has already pledged funds to launch the supporting think tank.

There is already a Cabinet Committee in place, taking advice from Acad, now led by Sir Francis Tombs, Rolls-Royce's chairman. This committee has managed to put a ceiling on defence R and D spending. What it has not yet succeeded in doing is having the "saving" transferred to another science sector.

Another important influence of this new focus on "exploitable science" has been the pressure on Whitehall departments to evaluate R and D spending in a more sophisticated way. The Department of Industry, which wants to double its present annual budget of £400m, has devoted much energy to evaluating returns from past investment. It claims its case is strong. Agriculture has been much less energetic.

Britain's top academics have been very resistant to change



adviser. It began, two chairmen ago, as an exercise in identifying national projects which had outlived expectations, so that they might consider shutting some down and releasing funds for all the exciting new opportunities scientists kept saying Britain should be supporting.

The exercise made little headway. At the last Dr Alfred Spinks, then Acad's chairman, once told me, every time his council alighted upon a project it believed should be stopped,

pursue chosen new projects, their commitment to superannuated research might weaken.

Just a year ago Acad duly produced its report on exploitable areas of science. A working party headed by Dr Charles Reece, ICI's research director, called for a national scheme to identify and support economically valuable projects at an early stage of scientific research. It proposed a forum of "wise men" in which the

of government R and D funds that go to defence; or could the insurance be purchased more cheaply by importing more Exocets and other overseas defence equipment?

The new machinery would not get into the detail of specific areas of spending, but would settle the broad allocation of resources between the departments that spend heavily on R and D: defence, education and science, industry, energy and agriculture.

erament could have bought off this sector and silenced its critics.

On the strongest advice from Acad, it has refused to do this. Acad recognises academic science as the spring which will nourish the new science it wants to exploit.

The fact that academic science is having a rough time is not disputed. The real cost of doing science has outstripped inflation—the so-called "sophistication factor" which is driving up instrument costs while the science budget is at best static. But Britain's academics, right up to its top-most institution, the Royal Society, have been very resistant to change.

This resistance is enshrined in the devotion of academic science to the time-honoured teaching boundaries of science: physics, chemistry, biology, etc. The real world, meanwhile, has become multi-disciplinary. Its pursuits can involve all these disciplines and many more. Acad wants academic science to get a big injection of new government money, but not merely to prop up present research facilities and the ageing instrumentation of "big science".

Acad envisages substantial additional funds being channelled exclusively into new multi-disciplinary research centres at the best of British universities, selected with the help of its thinktank. These would be devoted to areas it identifies (in its new role as Acost) as exploitable science for Britain.

Superconduction would be an obvious example. It would probably warrant two different centres, each focused on one of the two broad objectives foreseen at present: the electronic, computing and waveguide opportunities for this films of superconducting ceramic; and power engineering, which would pose quite different challenges in making tapes, wires and cables of ceramic.

Acad wants to see perhaps 20 or 30 such centres springing up quickly at Britain's most innovative universities. Each devoted to one of the scientific challenges that underlines major new industrial activities of the future—above all, in information technology, biotechnology, and advanced engineering materials.

But Acad insists these new multi-disciplinary centres should be independent of the science teaching role of Britain's universities, under directors of the same status as heads of departments, firmly in control of their own budgets and also attracting industrial sponsorship.

And there, as the impoverished academic scientists see it, is the rub.

Lombard

Cosmetic change in education

By Michael Dixon

THE KEY to the true identity of the horse which won the Wessex Stakes was — as Sherlock Holmes devotees will know — the dog that did not bark. As the UK political parties near the post in the election, it may be that a similar significant silence gives a clue to the real nature of their education policies.

While the silence in question is noticeable in all the parties' manifestos, it is especially so in the Conservative programme. For not long ago the absent topic was repeatedly emphasised by Sir Keith Joseph, then Education Secretary, as one of the nation's "most pressing problems."

Until the Cabinet banned Sir Keith from barking about education's empty-handed customers soon before he was replaced by Mr Kenneth Baker, he numbered them at 40 per cent of all pupils. If the test of marketable value is the examination success which most big organisations demand of young recruits, that figure is an understatement.

No fewer than 45 per cent of school-leavers lack a single Ordinary-level pass grade or the equivalent. But success in several subjects is usually wanted for a job with promotion prospects, and if the demand is raised to only two passes, a good half fall short. The minimum of five required for entry to higher education is out of reach for nearly three quarters.

Hence for every pupil the school system qualifies for a promising career, it disqualifies at least another. Few if any competing nations' systems have such a disabling result. Take for example Japan and West Germany. The UK compares well with them in terms of educational successes. Official statistics show that the proportion of eligible aged people who do well enough at school to enter higher study is 27 per cent in Germany and 38 in Japan. The UK figure is 31 per cent for state-sector higher education, and 40 if entries to private colleges are included

(which raises questions about the Alliance's proposal to double UK student numbers). Among people who do not qualify for further studies, however, research has found that those in Japan and Germany have typically been equipped not only with greater mental and other skills than those in Britain, but with interest in acquiring still more. By contrast, the UK counterparts often leave school purged of any ambition to train for skilled work.

It is therefore disquieting that no party has singled out the problem for remedy. It has little chance of being cured by Labour's promise to give all school-leavers "profiles" recording other successes as well as any in public exams. Most employers would probably go on ignoring all candidates without exam success, using the extra information merely to decide between those who had some. Since the empty-handed can largely from schools with poor reputations, they can hardly benefit much from the Conservatives' pledge to free schools which are oversubscribed with applications to build on their established advantages.

Nor is the problem likely to be overcome by all three main parties' promises that all schools will teach a standard basic curriculum. The fact is that whether children learn anything of value at school depends less on what subjects they are taught than on the motivating ability of their teachers.

But when teacher-training colleges are selecting entrants, they have no reliable means of telling whether they are likely to be able to motivate children to learn. While it is clear that some teachers are excellent at it and others are worse than useless, little if anything is known about what makes the difference between them.

Since none of the parties seems interested in such fundamental deficiencies, alone in funding the extensive research needed to repair them, the only accurate term for the real nature of their education policies is "cosmetic."

Real concerns of industry

From the Director, British Management Data Foundation

Sir—It is important that the real concerns of industry about monetary policy are correctly understood. These have not, however, been fully reflected by John Calf of the CBI (June 3).

He is, of course, absolutely right in underlining industry's desire for greater stability of exchange rates—but this should not be taken as meaning at any price. The overriding need is a competitive rate and the current worry is that sterling is creeping up again—despite the present very welcome efforts of the Treasury. What would really help would be a rate near to DM 2.80. This would give an appropriate edge—fluctuations below this level would be a bonus and not a worry!

What is worrying is that it still does not seem to be generally appreciated how fundamental exchange and interest rates are to our prosperity. Major international companies have increasing ability to move manufacturing round the world to where it is cheapest. High exchange rates will only drive work off-shore. Low rates will help our economy to grow and pull in manufacturing from overseas. Under these circumstances to deliberately hold up the pound by excessively high interest rates seems to industry to be a self-inflicted wound.

The Treasury argument that this is necessary to defeat inflation has been pushed to absurdity. It can be shown indeed that high interest rates have fuelled inflation through keeping up the RPI which is a prime factor for pay settlements and have seriously handicapped industry with little impact on personal borrowing. (Of the extortionate interest rates of credit cards, some over 30 per cent—at such a level how a point or two change in base rate can have the effect of squeezing personal expenditure that the Treasury fondly imagine, defeats me!)

The effect of changes in exchange rates on inflation has always been grossly exaggerated. Importers who are anxious to keep their market share will cut their margins. Others will be priced out—which is a good thing. As far as our manufacturers' prices are concerned, most of our successful companies put a great deal of added value into their products, so even if commodity prices batten, the effect is very marginal. In this respect the points made by Mr Pemberton (June 4) are very pertinent. He is right to castigate Mr Harran (May 28) for his misguided comments about savings in raw materials compensating UK exporters.

Letters to the Editor

On the question of the EMS, I do not think that the CBI is correctly reflecting industry's views. I believe most of manufacturing industry strongly supports the Prime Minister who deserves great credit for rejecting the siren calls from the City and elsewhere to abdicate our sovereignty in monetary matters to the EMS. Most of the alleged benefits can be shown to be illusory.

It is to be hoped that after the election we will continue to exercise our own monetary policy to meet our specific needs. In particular that we should reduce interest rates sharply by at least 2 per cent if not more. This would help to keep the exchange rate at a more sensible level as well as encouraging investment for market growth.

Anthony Cowgill
4-6 Saville Row, W1.

Energy policy

From Mr P. Ross

Sir—Your Leader (May 21) on the Labour Party's energy policy paper made many good points, but seemed rather afraid of its own logic. If as you suggest energy conservation is a strategic and economic necessity, and direct grants are a good use of national resources, then fiscal incentives to produce the marginal barrel from the North Sea may not be such a bad idea. It is not a question of subsidies to highly profitable multinational, but rather of how we optimise recovery of a valuable national resource in a highly competitive international market, and in the process create jobs and hard currency earnings and exportable high-technology.

There used to be a rather larger British independent sector, which was assisted in its growth by the existence of a state oil company that provided an efficient marketing operation for smaller companies as an alternative to the majors. In a recession a state oil company can sustain a higher rate of drilling and development activity than might otherwise be the case, facilitating private sector investment and limiting the damage to areas like the northeast of Scotland. The argument should not centre on politically emotive language about subsidies but on a rational discussion of the long-term economics of counter-cyclical investment. This might include the need to sustain the oil exploration and service industry in the UK, not just

A Christian Democrat

From the Conservative Parliamentary Candidate for Kensington

Sir—May I congratulate Malcolm Rutherford on his perceptive article (June 5) about the north-south gap here in Kensington? But may I also correct one mistake? I am not an "old fashioned Liberal"—I think I might perhaps be called a Christian Democrat. That is why I belong to the Conservative Party and support Mrs Thatcher.

(Sir) Brandon Rhys Williams
32, Rawlings St, SW3.

Community charge

From the Deputy Chairman National Union of Ratepayers' Associations

Sir—We find it extremely difficult to understand how the poll tax, known as the "Community Charge," can be described by Conservative Party spokesmen as "fair," when the same organisation has consistently declared from 1974 onwards that domestic rates were unfair because they were "not related to ability to pay."

At least, as far as domestic rates are concerned, there is a random and very tenuous correlation between income and contribution. But in the case of the Community Charge there is not intended to be any! Any relief afforded is no more — and probably, would be less — than under the rightly-discredited system it would be replacing.

Let us note what will be the position where, typically, the Community Charge is say, £250. After deduction of personal allowances, the effective rate

of compulsory direct taxation (ie income tax and Community Charge(s) combined) will be 28.48 per cent for the young whizz-kid on a salary of £20,000 a year. On the other hand, for the manual worker living next door, earning £120 a week and supporting a non-working wife, it will be no less than 47.25 per cent!

Surely, no person claiming to have a genuine concern for equity and justice can maintain that such a situation would be "fair."

Roland Rench
8, Minshall Place, Park Road, Beckenham, Kent.

Speculation on change

From Mr A. Dalgleish

Sir—Your coverage of the election appears to be based on an assumption that, if the government fell, the incoming one would be able quietly and calmly to start implementing alternative policies. In view of the extent to which Britain's reliability as a trading partner is identified overseas with the policies of Mrs Thatcher's government this appears most improbable. Comparisons with what occurred on past changes of government, in the days of consensus politics and rigid exchange controls, must be wholly irrelevant. The gap between left and right is far wider than at any time since the war.

It would be interesting to speculate on how many billion pounds would leave the country in the first five minutes after it was perceived that Mrs Thatcher had not got a working majority. What level of interest rates would be needed to maintain any respectable value for the pound? 30 per cent, 50 per cent? I have an interest here as I am most concerned regarding my children's house purchase mortgage and what would happen if they could no longer pay the interest. Would tour operators have to cancel all holidays not covered by advance purchases of foreign currency?

I suggest that these are the matters of real concern to the public, not the personalities of the rival party leaders.

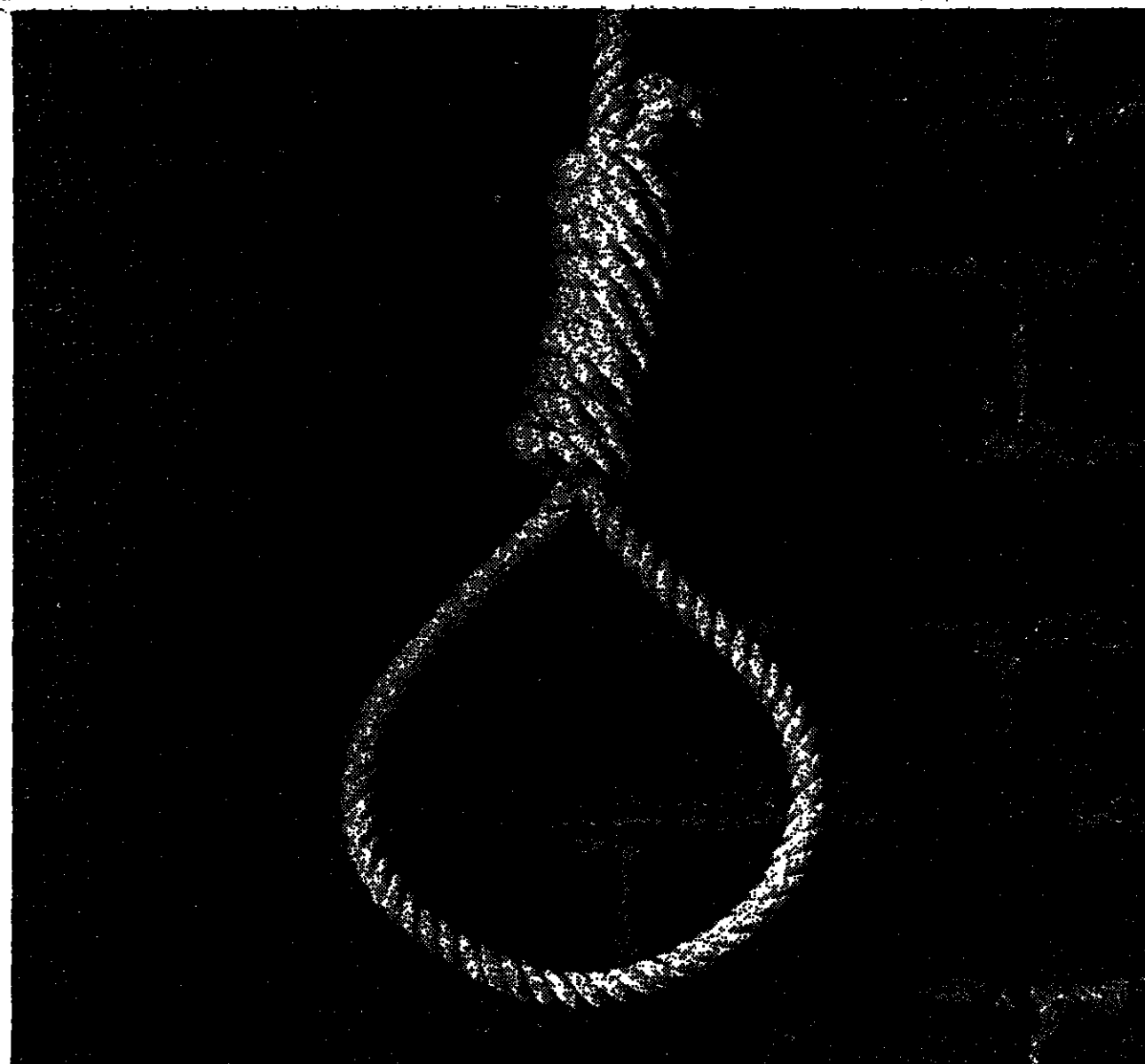
Angus Dalgleish
Shouson Hill,
Rushbury Rd,
Chertsey, Surrey.

Bang into the hole

From Mr B. Webb Ware

Sir—If Sir Nicholas Goodison had known his astrology, he would have realised that what he was creating was not a "big Bang" but a "Black Hole" into which all the paper has gone.

B. Webb Ware
Stoberry Cottage, Grafton,
Nr Peterborough, Suffex.



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Bonn tires of its refugee haven role



East Berlin border

Over the past few months, the

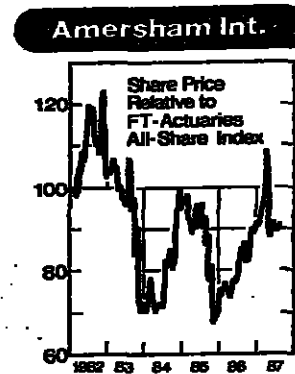
The Zirndorf office has doubled its staff to 600 over the past two years and is speeding up recognition procedures, aiming to get through 100,000 applications this year. Only 10 per cent are granted -

ladesh. He is being paid by the social security office and it seems to be worth his while, in spite of his lurid stories about the refugees frightening old people and refusing to use toilet paper.

My wife was pregnant," says Alexander. "They wrote me a letter to say she had the baby . . . we are praying to our God for our future. One day a letter might arrive to say my case has been cleared."

A late diagnosis at Amersham

welcome one (although it might be happy to see a dissolution of the golden share), there is no obvious industrial benefit, and thanks to the articles of association a bidder would need a 75 per cent EGM ma-



SEC decisions

Household Mortgage

Opposition parties fail to dent Tories' lead

World Wea

BRITISH ELECTIONS



g the need for a further period of
ability on foreign exchange mar-
kets.

Seoul's tear

ful residents

Extremists arrested in Egypt

The Government faces a constant challenge from Moslem militants pressing for the introduction of Islamic sharia law. Militants are also opposed to Egypt's peace treaty with Israel.

(former)

US relaxes sanctions

Orlando	S	30	68	Jacoby	L	13	86
Orlando	S	26	68	Jo'Quyn	E	17	63
Orlando	C	27	61	Lina	C	22	72
Orlando	F	21	70	Lindan	F	21	70
Orlando	S	32	69	Londan	H	14	57
Orlando	C	13	55	Los Angeles	C	24	75
Orlando	C	14	57	Lombard	C	12	54
Orlando	S	27	81	Mandil	F	18	66
Orlando	C	20	68	Mansour	C	21	70

C	12	58	Vancouver	R	22	72
F	13	54	Vancouver	C	24	75
F	13	55	Vancouver	F	24	75
C	13	55	Washington	S	23	73
C	9	48	Zurich	R	9	48

Callings at mid-day yesterday:

D-Dur	F-Fair	F-Fair	H-Hail	R-Rain
10	10	10	10	10

Express mail plan

Shops, offices, restaurants and hotels were forced to close and

commented: They have a right to know. Their health and life may be at stake."

Seoul's tearful residents

Shops, offices, restaurants and hotels were forced to close and

search into the medical effects, commented: They have a right to know. Their health and life may be at stake."


World Weather

[illegible]

Readings at mid-day yesterday:
C-Cloudy D-Drizzle F-Fair Fg-fog H-Hail R-Rain
S-Sun St-Storm Sn-Snow T-Thunder

Wickes Holdings plc

has been acquired by

 **Wickes plc**
(formerly Cityquest Public Limited Company)

*The undersigned acted as financial adviser to
Wickes Holdings plc in this transaction*

**Shearson Lehman Brothers
International**

May 1987

POLLS APART



CONSTRUCTION EQUIPMENT

SECTION II - COMPANIES AND MARKETS
FINANCIAL TIMES

Tuesday June 9 1987



Bernard Simon, recently in Anchorage, examines flourishing entrepreneurial skill in Arctic wastes

Eskimo traditions embrace capitalist spirit

LIKE MANY of Alaska's 70,000 Eskimos, William Hensley is still skilled at hunting caribou and pulling Arctic char from an ice-cold river. But Mr Hensley, aged 47, is also one of a new generation of native Americans in the Polar Bear State who are using a unique form of co-operative enterprise to hone their business talents.

As president of Nana Regional Corporation, based in the north-west Alaskan village of Kotzebue, Mr Hensley heads one of a dozen Eskimo-owned companies which are trying to combine the profit motive of modern capitalism with the traditions of a closely knit, subsistence society.

Nana earned a profit of almost US\$2m last year from such varied businesses as oil drilling, a hotel and a diversified securities portfolio worth about \$3m. The investments of its counterparts in other parts of the state include a Connecticut television station, a timber export agency and the Hilton and Sheraton hotels in Anchorage. Several have formed joint ventures with big energy companies to provide services on the North Slope oilfields.

The corporations have paid their shareholders an average dividend of about \$600 since they were formed in 1971. The minimum qual-

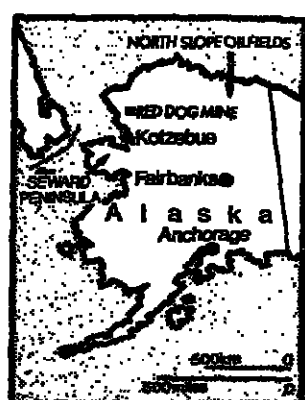
ification to be a shareholder is one native grandparent.

But Mr Hensley notes that "our people traditionally don't respect someone who is just chasing after dollars." As a result, some of the corporations are also heavily involved in efforts to maintain Eskimo values and culture in the face of television, tourism and the other hallmarks of the modern North American way of life.

Side by side with its business interests, Nana runs a "spirit" camp for 300 children each summer to instill them with Eskimo values and skills. It has built a museum in Kotzebue, and meets regularly with elders from neighbouring villages. Posters above the computer terminals in Nana's offices exhort such values as respect for elders, humility, love for children, hunter skills and knowledge of the family tree.

The regional corporations' most immediate challenge is very much a creature of corporate life in the late 20th century. The threat of a hostile takeover bid has forced them to mount a full-scale lobbying effort in the US Congress and the Reagan Administration.

Predators are expected to start stalking the corporations soon if Congress does not protect them from unfriendly takeover bids by



amending the Alaska Native Claims Settlement Act (ANCSA).

The Act, passed at the start of Alaska's oil boom in 1971, set up the corporations as an Alaskan alternative to the problem-ridden reservations set aside for North American Indians on the prairies and other parts of the contiguous US.

One aim was to give Alaska's native people a stake in the oil boom. Thus, ANCSA lays down that each corporation must split 70 per cent of its resource revenues among all 12 entities.

ANCSA ceded 44m acres of land to the corporation in settlement of claims by Alaska natives based on

their aboriginal use and occupancy. About 80 per cent of the land has already been selected and transferred.

These land holdings have enabled Sealaska Corp, based in the south-east part of the state, to build up a timber business exporting to the Far East.

The world's richest zinc mine is about to be built on Nana-owned lands, 90 miles north of Kotzebue. Nana is already receiving an advance royalty of US\$1m a year from Cominco, the Canadian mining group, which it has chosen to operate the Red Dog mine. Nana's share of the mine's profits will start at 25 per cent, rising to 50 per cent over 25 years.

The concerns about unfriendly takeovers arise from an ANCSA provision that existing shareholders in the corporations will be allowed to sell their stock to non-natives from December 1991.

The US Interior Department supports this provision on the grounds that its repeal would be unfair to individuals who wish to sell their stock.

Native groups are nervous, however, that the present law will clear the way for white-owned businesses to take control of institutions which, besides their business inter-

ests, have become an integral part of community life.

Ms Janie Leask, president of the Alaska Federation of Natives, says that "we feel that the Claims Act was a group settlement, not an individual settlement."

Some of the companies that have formed joint ventures with the corporations are concerned that they may end up with unwelcome partners if Congress does not amend ANCSA.

The corporations' activities have so far had mixed results. Nana, widely recognised as one of the most successful, paid a dividend of \$125 a share last year. Shareholders in another corporation received a windfall bonus of \$25,000 each following a timber auction.

On the other hand, the Bering Straits Native Corp, whose territory covers much of the Seward Peninsula, filed for bankruptcy last year. Some corporations have suffered from a dearth of business expertise. Subsistence fishermen, technicians and, in one case, a basketball coach have found themselves at the helm.

Arguably, however, their accomplishments cannot be measured only in figures. Ms Leask says that the corporations have "given native people political and economic clout in the state."

Genstar in \$200m property disposal

By William Hall in New York

AMERICAN GENERAL, one of the biggest US insurance companies with assets of \$24bn, is paying \$200m for the US property development business of Genstar, the financial services conglomerate taken over last year by Inasco, the Canadian affiliate of BAT Industries.

Houston-based American General announced yesterday that it would purchase the land-development division of Genstar Land-USA and its joint venture interests.

The acquisition consists of six residential projects under active development in San Diego, Phoenix, Vancouver, Orlando and Miami totalling 8,500 acres.

Three undeveloped residential, commercial and industrial sites totalling another 3,400 acres are also included.

American General will create a new joint venture, consisting of one of its mortgage property subsidiaries and the Newland Group, which will have a 25 per cent stake and be the development partner.

Newland will be formed by Mr Robert B. McLeod, president of Genstar Land-USA and Mr Paul T. Cote, its executive vice president.

The sale of Genstar's US property development operations is the latest in a growing list of disposals following Inasco's takeover.

Inasco has raised about C\$2.6bn from the sale of Genstar's assets which is roughly in line with the C\$2.6bn it paid to acquire the company whose most valuable asset is its Canadian Trustco Mortgage Company, parent of Canada's biggest trust company.

Inasco inherited another C\$2.3bn of debt and tax obligations as well.

Anglovaal expects 38% upturn in earnings to R127m

BY JIM JONES IN JOHANNESBURG

ANGLOVAAL, the smallest of South Africa's five mining houses, estimates that it will lift its attributable profit by 38 per cent to R127.8m (\$37.5m) in the year to June 30 1987 from R92.4m in the preceding year. The ordinary dividend has been lifted to 585 cents a share from 450 cents.

The house does not itself manage the day-to-day operations of the mining and industrial interests it controls. That is left to subsidiary companies which have already declared the profits accruing to Anglovaal this financial year. It also allows the house to declare its attributable profit ahead of the financial year's end.

Mr Clive Menell, the deputy chairman, says that almost all of the industrial companies controlled by Anglovaal Industries (AVI), Anglovaal's 88 per cent owned subsidiary, enjoyed markedly improved trading conditions and benefited from lower interest rates.

AVI has extensive food, engineering, construction, textiles and elec-

tronic interests. The gold mining companies managed by the house suffered from lower rand gold prices in the first quarter of 1987.

Nevertheless, Hartbeestfontein, the largest of the group's mines, has lifted its total dividend to 23.5 cents a share from 18.5 cents. Middle Witwatersrand, the group's mining holding company, increased its total dividend slightly to 180 cents from 155 cents.

The group's largest non-gold mining company is Associated Manganese, which produces ferroalloys and manganese and iron ores. Demand for manganese ore and alloys has been comparatively poor, but its ferrochrome unit has benefited from good demand by stainless steel producers.

At present new mine development plans are concentrated on gold. The group is nearing completion of a drilling programme to the north of its Lorraine mine in the Orange Free State and is expected to announce new mine development plans within a year.

Pay 'n Pak Stores to sell out to Rosewood

PAY 'N PAK Stores, the US specialised do-it-yourself retailing group, has reached a definitive agreement to be acquired by Rosewood Holdings, a newly formed company, Reuter reports from New York.

Under the agreement, shareholders will receive, on a blended basis, \$17 per share in cash and one preferred share of Rosewood, with a 17 per cent dividend and a \$4.25 liquidation preference.

Rosewood is controlled by a group of senior Pay managers, including Mr David Heerenberger,

the chairman, Citicorp Capital Investors, and other investors.

Pay 'n Pak said the transaction was a tender offer for 81 per cent of its outstanding shares at \$21 in cash per share, and a second-step merger of a unit of Rosewood with Pay.

Each Pay common share will be converted into a preferred share of Rosewood with a \$22.31 liquidation preference and the right to receive a pro-rata portion or any remaining cash, if less than 81 per cent of the common are purchased in the tender offer.

FN sees lower losses

BY OUR FINANCIAL STAFF

FN HERSTAL, the diversified Belgian weapons and leisure goods maker, aims to keep this year's losses minimal despite recording a net deficit of BFr 631m (\$18.7m) in the first quarter of the year.

FN said its first-quarter loss was considerably bigger than expected, while parent company turnover, at BFr 3.05bn, was BFr 1.10bn below target. FN has not published quarterly figures before.

The company attributed the worse-than-expected result to the continued weakness of the dollar,

lower oil prices and a time lag in reaping the benefits of internal cost-cutting measures. FN noted that its results were normally better in the second half of the year than the first.

FN reached agreement with shareholders in April on a financial restructuring plan involving the injection of BFr 1.63bn of new capital, consolidation of debt and BFr 1.5bn in new borrowing facilities.

FN shipped to a group net loss of BFr 2.8bn last year after posting a BFr 8.8m net profit in 1985.

Continental to sell subsidiary

CONTINENTAL Illinois has agreed to sell its Toronto Unit to Swiss Bank of Canada for undisclosed terms.

Continental said the gain from the sale of Continental Illinois Bank of Canada, which had total assets of C\$420m (US\$315m) would not have a material effect on its consolidated operating results.

The transaction has received approval in principle from Canadian banking authorities, Continental said.

Indian trust in US move

THE UNIT TRUST of India (UTI) is to launch a \$100m investment fund in the US in collaboration with merchant bankers Merrill Lynch, Reuter reports from Bombay.

Merrill Lynch will market the fund, which will be listed on the New York Stock Exchange, and UTI will invest the money collected in Indian shares, a UTI official said. Details are still being worked out.

UTI launched its first investment fund, the India Fund, in Britain last year, also in collaboration with

Merrill Lynch. The envisaged C\$8m (\$87.8m) fund was oversubscribed twice but UTI granted applications for only £75m.

"The decision to tap the US market follows the overwhelming response we had from India Fund," the UTI official said.

The net asset value of the India Fund had risen 10 per cent since its launch in September and a first dividend would be paid shortly, he said.

BSI 1873

Banca della Svizzera Italiana

Head Office Lugano, Switzerland

Banca della Svizzera Italiana (Overseas) Ltd., Nassau

Notice to the holders of the Warrants «A» and/or «B» of

2½% Sfr. Subordinated Bonds with Warrants 1986-96 of Banca della Svizzera Italiana, Lugano

4% US\$ Guaranteed Notes with Warrants 1986-93 of Banca della Svizzera Italiana (Overseas) Ltd., Nassau

and to the holders of the

6% US\$ Guaranteed Convertible Bonds 1983-93 of Banca della Svizzera Italiana (Overseas) Ltd., Nassau

We refer to the capital increase of Banca della Svizzera Italiana, Lugano, decided by the General Meeting of Shareholders on 9th April, 1987, and the corresponding notice to the holders of the Warrants and Convertible Bonds of 13th March, 1987, as well as to the split of each Bearer Participation Certificate (BPC) «Tranche B» of Sfr. 500.— into five BPCs «Tranche B» of Sfr. 100.— par value decided by the Board of Directors on 9th April, 1987, after the General Meeting of Shareholders.

In accordance with the Terms and Conditions of the Warrants and Convertible Bonds, the exercise and conversion prices respectively, and the number of BPCs the holders of Warrants and of Convertible Bonds are entitled to, have been newly set as follows:

Warrants «A»: each Warrant entitles the holder to acquire five BPCs «Tranche B» of Sfr. 100.— par value at the price of Sfr. 448.— each.

Warrants «B»: each Warrant entitles the holder to acquire five BPCs «Tranche B» of Sfr. 100.— par value at the price of Sfr. 462.— each.

Convertible Bonds: each Convertible Bond of US\$ 1250.— par value is convertible into BPCs «Tranche B» of Sfr. 100.— par value at the conversion price of US\$ 198.— per BPC.

If two or more Bonds are lodged together for conversion on behalf of the one holder, they will be aggregated in order to determine the number of BPCs to be issued in respect thereof. Subject thereto, no fractional BPCs will be issued but a cash adjustment will be made in dollars, based on the last paid price of the BPCs and the Sfr./US\$ exchange rate on the Conversion Date.

The new exercise and conversion conditions are effective from 20th May, 1987.

9th June, 1987

Banca della Svizzera Italiana, Lugano
Banca della Svizzera Italiana (Overseas) Ltd., Nassau

These Bonds having been sold outside Great Britain, this announcement appears as a matter of record only.

New Issue

May 1987

Mountleigh Finance N.V.

(Incorporated in Netherlands Antilles)

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5¾% Bonds 1987-1992

guaranteed by

Mountleigh Group plc

(Incorporated in England and Wales)

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Banque Morgan Grenfell en Suisse S.A.

Morgan Stanley S.A.

Salomon Brothers Finanz AG

Amro Bank und Finanz
Bank Heusser & Cie AG
Banque Indosuez, Succursales de Suisse
Chase Manhattan Bank (Switzerland)
Credit des Bergues
Credit Lyonnais Finanz AG Zurich
First Chicago S.A.
Lloyds Bank plc
Manufacturers Hanover (Suisse) S.A.
The Royal Bank of Canada (Suisse)
Security Pacific (Switzerland) S.A.

BA Finanz (Switzerland) Ltd.
Banca Commerciale Italiana (Suisse)
Banca Unione di Credito
Banco Exterior (Suiza) SA
BKA Bank für Kredit und Aussenhandel AG
Bank Leumi le-Israel Switzerland
Bank S.G. Warburg Soditac AG
Banque Bruxelles Lambert (Suisse) S.A.
BIL Banque Internationale à Luxembourg (Suisse) S.A.
Banque Paribas (Suisse) S.A.
Banque Scandinave en Suisse
Canadian Imperial Bank of Commerce (Suisse) S.A.
Compagnie de Banque et d'Investissements, CBI
Dai-ichi Kangyo Bank (Schweiz) AG
Daiwa Finanz AG
Fuji Bank (Schweiz) AG
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Hottinger & Cie
The Industrial Bank of Japan (Switzerland) Limited
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Mitsui Finanz (Schweiz) AG
Mitsui Trust Finance (Switzerland) Ltd.
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Shearson Lehman Amess Finance S.A.
Société Bancaire Julius Baer S.A.
Sumitomo International Finance AG
Sumitomo Trust Finance (Switzerland) Ltd.
Swiss Cantobank (International)

Banque Gutzwiller, Kurz, Bangener S.A.
Crédit Commercial de France (Suisse) S.A.
Samuel Montagu (Suisse) S.A.

Banque Nationale de Paris (Suisse) SA
Ingeba Internationale Genossenschaftsbank AG
J. Henry Schroder Bank AG

Alpha Securities AG
Banco di Credito Commerciale e Mobiliare S.A.
Banca del Sempione
Banca Solari & Blum S.A.
Bank in Huttwil
Bank in Ins
Bank Langenthal
Bank in Langnau
Bank Rohrer AG
Banque de Dépôts et de Gestion
Great Pacific Capital
Grindkays Bank p.l.c. (a member of the ANZ Group)
E. Guizwiller & Cie, Bankiers
Overland Trust Bank
Rigg Bank AG
St. Gallische Creditanstalt
Società Bancaria Ticinese
Solviturum Handelsbank
Spar- und Leihkasse Schaffhausen
Volksbank Willisau AG

INTERNATIONAL COMPANIES and FINANCE

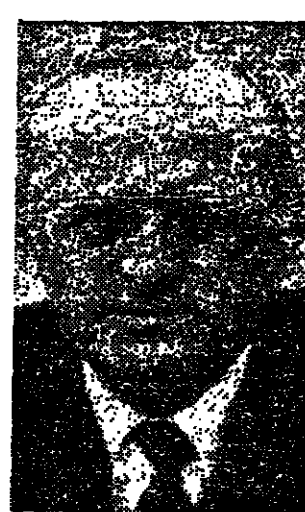
Andrew Fisher explains why the VW agm might involve stormy scenes

Bankers put Hahn in the firing line

MR CARL HAHN, chairman of Volkswagen, will be just one day past his 61st birthday when the West German motor group faces shareholders at the annual meeting on July 2. He may well feel a good deal older before the day is out.

Likely to dominate and enliven the proceedings are the implications of the currency shock that has cost VW up to DM 470m (\$265m), although it still made high profits in 1986, and cast a pall over a concern that has been virtually synonymous with the country's post-war Wirtschaftswunder, or economic miracle.

Apart from the cost of the fraud and the sad fact that it came to light just ahead of what should have been magnificent celebrations for VW's 50th anniversary, a serious white-hot, the affair has thrown a harsh spotlight on VW's management practices.



Carl Hahn: management under scrutiny

It is these that could well come under further close scrutiny and sharp questioning at the agm in Wolfsburg, the VW factory town close to East Germany. They have caused West Germany's three big commercial banks to agonise in recent days over how to advise their clients to vote.

In the event, the banks have not done anything very dramatic. Warning the big stock, at least in public, is not their style. Basically, they are waiting for the result of an independent accountants' report, which should be ready before the July meeting.

Until that arrives, they are unsure what to tell clients who have VW shares deposited with them. The report may either absolve the management of all responsibility for the currency fraud and for not finding out about it earlier, or decide that it should bear some of the blame.

The crucial part of the meeting will come when voting

occurs on the motions to "relinquish" the management and supervisory board, or in other words to ratify their actions for 1986. This amounts to an effective vote of confidence in the directors.

It is on these two motions that the banks have been warring what to do. Deutsche Bank decided to tell clients to abstain, unless the report indicated otherwise. Commerzbank said they should vote for the board, but also left open the possibility of different action if the report justified this.

Dresdner, the last to decide, opted for a slightly different approach, namely to wait for the report being prepared by Deutsche Treuhand. If this showed the board was tardy or negligent in dealing with the foreign exchange fraud, then the motion at the agm should be opposed. Otherwise, it should be approved.

Dresdner also said voting on the motions should be adjourned, if this seemed necessary. The report, commissioned by VW, is expected to be available in time for shareholders to take a view in reasonable time ahead of the agm.

Does all this activity mean that Germany's big financial institutions are ready to take a more openly active, and if necessary even hostile, attitude towards corporations? Hardly. The German style is to do these

things behind closed doors, if at all, and not in full view of a curious public.

However, the advice of the big banks to clients is unusual enough to indicate that the wind has started blowing in the right direction, according to some analysts. "It is a slight rap on the knuckles for VW," said one. "Definitely a move for the better," added another. Will it make any difference? At the agm, the board is likely to get its "relief" since the Government and the state of Lower Saxony jointly hold 40 per cent of the voting capital. Mr Hahn himself is said to be unworried by reports of big bank opposition and even of moves to replace him.

He will most likely need all his diplomatic and public relations skills on July 2, though. Interestingly, Mr F. Wilhelm Christians, co-chairman of Deutsche Bank, is on the VW supervisory board. The bank is thought to be more than a little put out that the fraud was announced only a few months after it led a DM 2.1bn rights issue for VW.

Mr Christians has been sounding off against shareholders who prolong and disrupt annual meetings—rarely short affairs at best—for political reasons. At VW, however, the agitation is not likely to be political, but very definitely related to the group's management and financial performance.

Conti-Gummi to bid for US tyre group

By Our Frankfurt Staff

CONTINENTAL, the West German tyre company, plans to make a definite offer for General Tire and Rubber of the US, after approval of the proposed investment by its supervisory board.

Conti-Gummi recently signalled its intention to expand outside Europe, especially in the US, planning to raise over DM 1bn (\$599m) in new share and loan issues to finance this. It already has DM 200m set aside for acquisitions.

Mr Helmut Werner, chairman of Conti-Gummi, said last month that the company hoped to bid for General Tire, which already produces 300,000 tyres a year for the German company under licence. No price has been mentioned, but US analysts put the likely figure at between \$500m and \$700m. In Ohio, General Tire, the fourth biggest tyre company in the US market, said it had still not been decided whether its disposal should be through a bid such as that planned by Conti-Gummi, a management buy-out, or a public share issue.

However, it aimed to decide quickly. Last year, General Tire earned net income of \$46.3m on sales of \$1.12bn. General Tire is being sold by GenCorp, its parent, to help meet the \$1.6bn costs of a takeover defence.

General Tire, which employs 10,000 people and has five US plants, said Pirelli of Italy had also shown interest, but had not yet said whether it wanted to bid.

Italtel lifts turnover 12%

ITALTEL, the Italian state telecommunications company, said consolidated turnover in the first quarter rose 12.1 per cent to L267bn (\$263m) from L238bn in the comparable 1986 period. Reuters reports from Milan. Italtel said the turnover rise was achieved despite a fall in the price of electronics products, which represent 80 per cent of the group's production.

Elsevier presses on with bid for Kluwer

By LAURA RAUN IN AMSTERDAM

ELSEVIER, the Netherlands' second largest publishing company, is pressing ahead with its hostile takeover bid for Kluwer, the third biggest publisher, and has indicated that it has begun buying shares in the open market.

Mr Pierre Vinken, Elsevier's chairman, said yesterday that he "assumed" Kluwer shares were bought late last week and that he would find out today how many and what price. Financial analysts in Amsterdam widely believe that the predator jumped into the market after its surprise announcement last Wednesday and purchased Kluwer shares at an average price of FL 300, which would value the company at around FL 720m (\$358m).

Kluwer closed at FL 327 per share on Friday on the Amster-

dam stock exchange, a 23 per cent jump from its level of FL 266 before Elsevier's announcement that it was considering such a bid. The bourse was closed yesterday for Whit Monday.

If Elsevier acquires 50 per cent or more of Kluwer's shares it must be announced publicly.

Mr Vinken, an ambitious chairman who aims to make Elsevier one of the world's biggest publishers, confirmed yesterday that his company would make a public tender offer in cash or stock despite Kluwer's determined opposition. He and Mr Joop Alberdingk Thijm, chairman of Kluwer, are to meet tomorrow at Kluwer's invitation.

Kluwer will continue to fight the unwanted bid regardless of the offering price, it said yesterday. It flatly rejected speculation that a high offer would capture the Deventer-based publisher.

If Elsevier, which is based in Amsterdam, were to succeed in taking over Kluwer the resulting company would be a world leader in scientific and professional journals with an annual turnover of about FL2.5bn.

Both companies are strong in science, professional and business publications at home and abroad, including English-language ones, and also have newspaper and book interests. Mr Alberdingk Thijm explained confidently last week that Kluwer opposed Elsevier's overtures because the smaller publisher doesn't share its bigger rival's aspirations. Kluwer prefers to foster creativity through smaller operating units and to focus more on the domestic Dutch market, he said.

The battle between the publishers, which mirrors similar struggles in London and New York, is the Netherlands' most bitter takeover fight in recent years. Such clashes are rare because companies have wide powers to protect themselves against unwanted advances although those powers could be tested in the courts.

Kluwer said it is prepared to issue preferred stock as soon as this week, which would be placed in an existing, internal foundation controlled by the supervisory board. The new preferred stock could put as much as 51 per cent of the voting rights under control of the supervisory board.

Another 100 priority shares already are in a separate foundation, also controlled by the supervisory board.

Fiat suspends Brazilian investment

By Ann Charters in Sao Paulo

FIAT BRAZIL has suspended a US\$300m investment plan for this year and next due to the "extremely grave outlook" for the Brazilian economy.

Mr Silvano Valentini, director superintendent of Fiat in Brazil, said that the company lost \$18m in the first quarter of this year because of the drop in domestic sales, an inability to recover increased costs through price rises and an unrealistic exchange rate.

Mr Valentini said that the Government held out "rational hopes" that the economic situation would stabilise.

The Brazilian motor industry, which has seen domestic sales drop 38.8 per cent in the first five months of this year, is due for a 40 per cent price increase today.

Mr Valentini said the industry is requesting a price rise based on increased costs over the past 30 days, including higher government-controlled steel and energy prices.

With inflation running at more than 20 per cent and automatic salary increases triggered for workers, industrial companies operating in Brazil have seen their costs surge.

The motor industry has asked the Government to further cut its taxes.

In 1986, Fiat Brazil had net profits of \$65m. Mr Valentini said unless official action is taken to ease the cost pressures some companies will fall into loss.

Fiat's investment plans were aimed at expanding production capacity from 270,000 to 300,000 vehicles a year and to introduce new models. The company has just completed the first \$900m stage in what was to have been a \$600m investment programme.

Swedish chemicals group raises profits by 39%

By KEVIN DONE, NORDIC CORRESPONDENT IN STOCKHOLM

PERSTORP, the Swedish specialty chemicals and plastics group, increased its profits (after financial items) in the first eight months of the current financial year by 39 per cent to SKR 303m (\$48m) compared to SKR 218m.

In the eight months to the end of April, group turnover rose by 9 per cent to SKR 2.89bn from SKR 2.65bn in the corresponding period of 1986.

Most of the group's business areas reported higher sales, but the main increases came from the plastic systems and biotech divisions.

Mr Karl-Erik Sahlgren, group chief executive, said that profits for the full year are expected to top SKR 400m compared with SKR 313m. Earnings per share in 1986-87 should rise to more than SKR 11.00 from SKR 8.55 a year ago.

Group capital investments are high and are expected to total SKR 300m this year compared with SKR 269m in 1985-86.

Perstorp said, however, its financial position remained "strong", and that the investments and increased working capital had been financed from profits.

Perstorp has made acquisitions to strengthen existing business areas including most recently the takeover of IRI, Finland's leading producer of decorative plastic laminates from Metsä-Serla, the Finnish pulp and paper group.

Perstorp Compounds has also reached an agreement with Dynamit Nobel to acquire the West German group's production and trade-marks in the area of amino moulding compounds.

Perstorp has also licensed its formaldehyde production process to Du Pont, marking its breakthrough in to the US market in this sector.

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June, 1987

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Agent Bank:
Morgan Guaranty Trust Company of New York
London

Consolidated Gold Fields Finance PLC

£75,000,000

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unconditionally guaranteed by

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June 9, 1987 London
By: Citibank, N.A. (CSI Dept.), Agent Bank

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Interest Amount per £10,000 Note due 7th September 1987	£231.14

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Deak International, Inc.

has acquired

Johnson Matthey Commodities Limited

from

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The undersigned initiated the transaction, assisted in the negotiations and acted as financial advisor to Deak International, Inc.

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State control for Malaysian group

BY WONG SULONG IN KUALA LUMPUR

TAN Sri Chong Kok Lim, the beleaguered Malaysian businessman, has given up control of Landmarks Holdings, his listed company, to a government agency as a compromise to allow him more time to work out a solution to debts of as much as 922m ringgit (US\$376m).

A consortium of foreign banks had requisitioned an extraordinary meeting, scheduled for yesterday, to remove him and his three sons from the Landmarks board.

However, the Chong family pre-empted the move by resigning and allowing Perebba, the government property company,

to take over management control. Tan Sri Chong and one son were later invited to join the board.

Perebba, which holds 30 per cent of Landmarks, now has four directors on the eight-member board.

Tan Sri Chong said his action was in part to satisfy the foreign banks, and also to ensure that the Landmarks group is not dismembered if it falls under the control of foreigners.

Landmarks owns the Regent Hotel and the popular Sungai Wang shopping complex in Kuala Lumpur, and is also involved in property development and plantations.

The foreign banks — including Westpac of Australia, American Express and Manufacturers Hanover of the US, and British Hill Samuel — had requisitioned the meeting following the breakdown in negotiations with the Chong family over non-payment of their loans.

According to a report prepared by Arthur Young, the accounting firm, on behalf of the family, the Chong Kok Lim group of companies has accumulated liabilities of 822m ringgit, about a third owed to foreign banks. The value of assets pledged is estimated at 1.06bn ringgit, the

bulk of which is in land, which is hard to realise in the current depressed property market.

Also among the assets pledged are 41.6m Landmarks shares, representing 19 per cent of the company, a holding which the banks had used to call the meeting.

Tan Sri Chong, aged 75, yesterday appealed to his foreign creditors to allow him time to work out a rescue plan. He said he was honouring all his commitments, and said "the prolonged economic recession in the country has badly affected my businesses, which are mainly in properties or are property-related."

Egypt turns down Bank of America sale plan

By Tony Walker in Cairo

EGYPT'S central bank has quietly turned down a Bank of America request to divest itself of its share in a local joint venture to an Islamic investment company.

Bank of America said the central bank had indicated it would not approve a transfer of the bank's 40 per cent share in Misr America International Bank (MAIB) to El Rayan Investments.

The US bank said the central bank refused the request on the grounds that El Rayan was not considered a suitable partner in such a venture.

Government officials have criticised the growing Islamic investment sector which, in some cases, has been offering returns of 20 per cent on depositors' funds.

These investment houses operate under an ill-defined set of laws, and income cases effectively outside government control.

MAIB's shareholders, apart from Bank of America, include Misr Insurance Company, Industrial Development Bank of Egypt and Kuwait Real Estate Bank.

MAIB said it broke even last year, but it is no secret that Bank of America has been anxious for some time to divest itself of its shareholding.

El Rayan, the most prominent of the Islamic investment houses, proposed investing about \$14m in MAIB, which has paid-up capital totalling \$7m.

New foreign exchange regulations are believed to have persuaded institutions such as El Rayan to seek an involvement in the mainstream financial sector. But the central bank has proved reluctant to approve transfers of ownership or new shareholding arrangements in local banks.

It has also placed an effective freeze on new banks opening in Egypt, and on foreign currency branches — those authorised to deal exclusively in hard currency — converting their operations to joint ventures so they can deal as well in Egyptian pounds.

Credit Suisse has had a long-standing application to be allowed to convert its operations from those of a foreign currency branch to a joint venture. Approval has not yet been given.

Osaka stock futures face tough start

THE START of limited stock-index futures trading on the Osaka stock exchange today is a test of the country's new financial markets, but some experts warn that the new trading system could get off to a slower start than expected, writes AP-DJ in Tokyo.

Legislative snags and soaring cash market prices for many of the

50 stocks selected for the Osaka system have taken some gusto out of trading scheduled to have begun last April.

While most market observers agree that the long-term outlook for stock-index futures trading in Japan is rosy, they argue that it will take time for the conservative cast of many Japanese investors to wear off and for the new system to become popular.

Mr Masami Nishi, senior managing director of Taiheiyō Securities International division, notes that

Osaka's new stock futures market may not attract many institutional investors because of their caution. He argues, on the other hand, that "industrial Japanese investors like to speculate so the market is likely to be very successful."

Not everyone agrees. "I think the real level of interest is going to be low," says Mr Charles Elliot, director of Japanese research for Goldman Sachs.

Also on the horizon is the possibility of competition from the Tokyo Stock Exchange (TSE), the

largest of Japan's eight major securities exchanges. The TSE is already exploring the idea of starting trading in stock index futures by 1988, while a finance ministry panel formed last December is studying the possibility of introducing stock index futures and options trading throughout the country.

Mr Toyoe Gyohten, vice Finance Minister for international affairs, said last week the ministry would make a "vigorous study" to enlarge the scope to include currency, deposit and other forms of futures trading.

Higher tax hits profits at Elbit

BY JUDITH MALTZ IN TEL AVIV

ELBIT, a leading Israeli computer and defence electronics company, shares in which are traded over-the-counter in New York, has recorded a 12 per cent drop in its after-tax profits for the year to March, to US\$16m.

The downturn was attributed to a sharp increase in the company's tax burden during the last financial year to \$7m, since in gross terms Elbit profits rose

by \$1m over the previous year. Exports, meanwhile, grew by a healthy 15 per cent to \$108m, mostly to the US and Western Europe. Mr Emmanuel Gil, the company's president, said, however, that most of this increase was offset by cuts in orders from the Israeli Defence Ministry, which is traditionally Elbit's main customer. As a result, total sales rose by less than 4 per cent to \$176m.

Mr Hill added, though, that he was pleased with the company's "improved status in the international market, especially in the US." Thanks to its export success, Elbit has been one of the few Israeli defence companies to consistently show profits over the past several years. Its order backlog stood at \$258m by the year end. Elbit is a subsidiary of Eilon Electronic Industries.

Sony and US Prudential discuss split

BY YOKO SHIBATA IN TOKYO

SONY, the Japanese electronics group, is believed to be in talks with Prudential of the US aimed at severing their links in a joint venture life assurance operation to enable each company to develop its own insurance business in the country.

Sony Prudential Life Insurance was set up in April 1981 and now has assets of some ¥4.95bn (\$34.4m). Prudential is now exploring the possibility of establishing a new fully-owned subsidiary in Japan, while Sony intends to take over a 50 per cent stake in a joint venture from Prudential to lift its holding in the joint venture to 70

per cent. This will enable Sony to move into the life assurance business in its own right for the first time.

Under this plan, 30 per cent of Sony Prudential would still be held by Pruco, a subsidiary of Prudential. Sony would allocate 5 per cent each from its expanded holding to Mitsui Bank and Mitsui Trust Bank.

Industry officials in Tokyo said Prudential has expressed its desire to engage in the life assurance business in Japan by itself. Foreign life companies have in the past been steered by the Ministry of Finance to

invest through joint ventures with Japanese partners. However, Equitable Insurance was allowed to launch a Variable Insurance venture in its own right, and Prudential subsequently sought similar permission.

Sony views the Prudential plan as a long coveted opportunity to move further into the life business itself. Established Japanese life companies said Prudential's move is the inevitable course of events—but they showed strong dissent to the idea of granting life insurance licences to major manufacturing enterprises.

Plate Glass increases sales and income

BY JIM JONES IN JOHANNESBURG

PLATE GLASS and Shatterproof Industries (PGSI), the South African-owned glass and timber products distributor, increased sales by 20 per cent in the year to March and is budgeting for further growth in the current year.

Turnover increased to R1.68bn (\$832m) from R1.40bn and pre-tax profits were R115.5m against R80.6m.

PGSI has subsidiaries in Australia, the US, Britain, Europe and South East Asia, and in other African countries.

South Africa generally provides just 40 per cent of turnover and 50 per cent of earnings.

Net earnings per share rose to 305.0 cents from 202.5 cents and the dividend has been increased to 145 cents from 105 cents.

PAN - HOLDING
Société Anonyme
Luxembourg

The Annual General Meeting of shareholders, which took place on June 1, 1987, approved the accounts for the year 1986. The consolidated profit and loss account shows a net profit of US\$32,463,744. After the transfer to the contingency reserve of the net realised gain of US\$29,599,479, there remains a net investment income of US\$2,864,265.

The shareholders' meeting decided the distribution to the shareholders on June 30, 1987 after the close of the markets, of a dividend of US\$6.25 for the year 1986, which is to be compared to the dividend of US\$5.60 for the year 1985.

This dividend of US\$6.25, which is free of withholding tax in Luxembourg, will be payable as from July 1, 1987 onwards.

The consolidated net asset value per share of Pan-Holding as of December 31, 1986 was US\$362.34 showing an increase of 27.7% compared to December 31, 1985. Taking into account the dividend paid, the increase amounts to 29.7%.

The chairman indicated that investments in North America had declined from 38% at year-end 1985 to nearly 28% at year-end 1986 owing to substantial capital gains which have been and to the continuing drop of the dollar. The percentage invested in Europe was about 38% and 10% in Japan, in view of currency fluctuations and of excesses which have happened on several markets.

favouring the long term protection of assets, the company took a cautious stance by increasing its level of cash at the end of April, cash and cash equivalents represented 11% of the net assets and gold and gold related assets approximately 10%. As of May 31, 1987 the consolidated net asset value per share amounted to US\$428.98, an increase of 18.3% compared to December 31, 1986. At the same date, the consolidated net asset value per share amounted to US\$454.17 against US\$379.68 as of December 31, 1986. The General Meeting re-elected as directors Messrs Hugh Jon Foulds, W. Geoffrey Easton, O.B.E., D.F.C., Georges Muller, Derek R. Strauss and Ernest Weill. These appointments will end with the General Meeting approving the accounts for the year ending December 31, 1987.

All of these securities have been sold. This announcement appears as a matter of record only.

\$75,000,000

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May 1987

U.S. \$150,000,000

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Guaranteed on a subordinated basis
as to payment of principal and interest by

First Interstate Bancorp

Interest Rate	7¾% per annum
Interest Period	9th June 1987 9th September 1987
Interest Amount per U.S. \$10,000 Note due 9th September 1987	U.S. \$188.47

Credit Suisse First Boston Limited
Agent Bank

U.S. \$150,000,000
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(Incorporated with limited liability in the Netherlands)

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Midland Bank plc

For the six months from 9th June, 1987 to 9th December 1987 the Notes will carry an interest rate of 7¾% per annum. The interest payable on the relevant interest payment date, 9th December, 1987 against Coupon No. 15 will be U.S. \$200.16 per U.S. \$5,000 Note.

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U.S. \$100,000,000

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Floating Rate Notes Due 1995

Interest Rate	7½% per annum
Interest Period	9th June 1987 9th September 1987
Interest Amount per U.S. \$50,000 Note due 9th September 1987	U.S. \$950.35

Credit Suisse First Boston Limited
Agent Bank

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UK COMPANY NEWS

Amersham just below forecasts with £22m

BY STEVEN BUTLER

Amersham International, the radioactive material maker, yesterday reported a 26 per cent rise in pre-tax profits to £27.1m in the year to the end of March, continuing a string of record profits since it was privatised in 1982. Turnover rose by 24 per cent to £148.5m. The profits came in slightly below analysts' forecasts and its shares closed down 25p at 603p.

Attributable profits rose by just 9 per cent, reflecting a rise in tax payments in the UK and overseas, and increased payments for minority interests, as had been earlier anticipated by the company.

Earnings per share rose to 26.6p (24.5p), with a proposed final dividend of 5.40p (4.58p), bringing the total year dividend to 7.5p (7.0p).

The principle source of growth came in the medical products area, where sales advanced by 26.6 per cent to £62.8m, while profits rose from £2.49m to £2.55m.

Mr W. H. Ellaby, finance director, attributed the rise in profit to currency movements. Medical products sales are more

heavily concentrated in Europe and Japan, while the research and industrial products divisions are more heavily concentrated in North America. Other factors in the advance of medical products include the start of profitability of new pharmaceutical products, which had begun to show profits only in the previous year. Amersham was also able to realise the benefits of earlier research and development expenditures in non-radioactive detection—the Amerlite immunoassay system for medical diagnosis.

Mr Ellaby did not anticipate that growth in the current year would be so heavily skewed in favour of one product division. "We are looking for an advance across the board," he said yesterday.

Sales of research products expanded by 16.6 per cent to £38.5m, with profits climbing to £15.68m (£14.41m). Some 200 new or improved products were launched in the area, with 3 in non-radioactive area where Amersham is placing greater emphasis.

In the industrial products

divisions, sales were £27.19m (£21.37m), with profits declining to £5.32m (£5.44m). Turnover was spurred by the acquisition of Tech/Ops non-destructive testing.

Sales growth was somewhat sluggish in the UK and the Americas, while growth in the rest of Europe and other areas of the world, including Japan, expanded by 33 and 31 per cent respectively.

Amersham's heavy investment programme continued, with investment rising 15 per cent to £14.2m, or 10 per cent of sales. Capital expenditure rose by 60 per cent to £21.4m due to programmes to increase capacity for developments and production.

Mr Ellaby said that the current gearing ratio, at 36 per cent, was due to the high level of capital expenditures, and would come down over the next year as construction is completed. The company plans no rights issue, and there are no acquisitions currently anticipated, although the company is always looking.

See Lex

United News wins Extel

BY CLAY HARRIS

United Newspapers yesterday clinched its £250m takeover of Extel by winning the support of nearly 74 per cent of shares in the information and communication group.

The newspaper and magazine publisher succeeded without having to improve its original terms. Victory was achieved less than four weeks after United published its offer document.

Extel's final hope of reprieve disappeared yesterday morning

when the proposed acquisition was cleared without a reference to the Monopolies and Mergers Commission.

With the bid being declared unconditional in all respects, United extended the cash element of its offer for another fortnight, to June 22. After gaining nearly 42 per cent by last Monday, United gave shareholders only another seven days to take the cash. This prompted Extel to throw in the towel.

Samuel Montagu, advising United, deliberately forced the

pace in the bid. Institutional shareholders were told, in the words of Mr Rupert Faure Walker of Montagu, "if there wasn't a decent level of acceptance by the first closing date, we would walk away. That wasn't a bluff. We meant it."

After a 6p rise in United's share price, its share offer yesterday had recovered to equal the 48p cash offer. Samuel Montagu, advising United, deliberately forced the

OEM hit by rescue of customer

BY DAVID WALLER

Office and Electronic Machines, typewriter and office equipment distributor, has had to restate its results for 1986 after rescuing a major customer, Belling Business Machines (Holdings) of Leeds.

Taxable profits of £911,000 have been restated as losses of £439,000, after making a provision of £1.35m to cover bad debts and restructuring costs associated with BBM, acquired by OEM for a nominal sum last week.

OEM said that BBM, the principal distributor of its

range of products in the north of England, had been acquired to protect its own interests and those of its customers.

"In the past fortnight, BBM experienced a considerable cash flow problem which could have resulted in liquidation," said Mr Norbert Paur, an OEM director. "Had we not bought the company, we would have lost a lot of stock."

"We were controlling our credit on the basis of BBM's 1985-86 balance sheet, which showed a totally different state of affairs."

The previously-proposed final dividend of 5.5p will now be paid as a second interim.

In a separate development, OEM announced that its directors had been in technical breach of the Companies Act as a result of transactions between OEM and Mr John Elmer, a board member. The company said no material profits had accrued to Mr Elmer or OEM, and full details will be given in the report and accounts for 1986, which will be posted to shareholders on June 16.

Under the Octagon package, Wordplex would raise £3.6m through a placing and £5.7m in an 11-for-10 rights issue at 50p a share. It had also secured revised banking facilities including a £1m loan facility.

Mr Heywood dismissed suggestions that a statement yesterday by Chase Securities, which speaks for 20 per cent of Wordplex, in favour of Apricot made the issue a foregone conclusion.

In the year to March, Apricot reported profits after extraordinary items of £2.52m (loss of £1.91m). Earnings per share were 5.03p (losses of 20.33p).

Apricot was unable to pay a dividend because it has a negative balance in its profit and loss account.

Turnover in the period increased from £10.4m to £37.9m, with a first time contribution of £24m from Bow Valley's coal operations. Provision for taxes was £1.9m, compared to £493,000, and net income was £2.1m against £1.2m.

As a result of the acquisitions, group asset value increased sharply, and by the end of March gross assets were

Apricot in £14m bid for Wordplex

By David Thomas

Apricot, Birmingham-based computer manufacturer, yesterday launched a £14m bid for Wordplex Information Systems, low-making office automation group, as it reported a return to profitability for the year to March 31 1987.

Pre-tax profits were £4.04m on sales of £71.16m compared with losses of £15.25m on sales of £90.55m in the previous year.

Wordplex last night rejected Apricot's offer. It said it would still be recommending the refinancing package organised last month by Octagon Industries, a management services concern specialising in information technology, at its extraordinary meeting on Monday.

Mr Roger Foster, Apricot chief executive, said the company believed Wordplex's maintenance operation, sales force and customer base would complement Apricot's.

Apricot would inject new products into Wordplex's range. It would review its overseas operations, selling or closing those which could not be returned rapidly to profitability, and would consider merging its manufacturing in Slough with Apricot's in Scotland.

Wordplex made pre-tax losses of £2.13m on sales of £66.94m last year.

Apricot is offering 13 shares for every 10 Wordplex. With Apricot closing at 106p, down 4p, that values the offer at £14.1m or 137.8p per share. There is a cash alternative of 130p. Wordplex closed up 5p at 135p.

To finance the offer, Apricot would invite its shareholders to reach out 5,000th printer but I am sure we will be celebrating the 10,000th in a lot less time than that," Mr Minto exclaimed to the company's assembled staff and workers.

If there is a secret to Wordplex's success it is that with the computer programmable ink jet printer it has found a solution to an age-old printing nightmare. It is easy enough to design every letter machine just churn out the same thing over and over again but what happens if every article has to carry some specific information or data?

Spraying a precise film of ink through the nozzles of small

Terry Povey on the expansion plans of Domino Printing Seeking to add a few more spots

DOMINO PRINTING Sciences is spreading its wings. The ink jet printing specialist is one of the successes of Cambridge Consultancy, the entrepreneurial engineering school often overshadowed by its better known but more accident prone electronic neighbours from the same City.

Yesterday Domino—the name comes from the project title used during its days in the Consultancy incubator—spent £875,000 acquiring Mandergraph, a private company which has developed a high speed addressing system based on the Cambridge company's ink jet printers.

In addition Domino is developing a relationship with Elmit, another Cambridge company, which employs ink jet printing in wall and floor coverings, and the fabric and packaging industries.

Domino's growth—sales are up twofold since 1982—was marked by the project title over a month ago when Mr Graeme Minto, its chairman, handed over the 5,000th printer to Lyons Tetley the tea packaging division of Allied-Lyons.

The nine-year-old Domino was clearly pleased to have a well satisfied 150-year-old customer.

"It has taken us nine years to reach our 5,000th printer but I am sure we will be celebrating the 10,000th in a lot less time than that," Mr Minto exclaimed to the company's assembled staff and workers.

If there is a secret to Domino's success it is that with the computer programmable ink jet printer it has found a solution to an age-old printing nightmare. It is easy enough to design every letter machine just churn out the same thing over and over again but what happens if every article has to carry some specific information or data?

Spraying a precise film of ink through the nozzles of small



Mr Graeme Minto (left), chairman of Domino, presenting an award to Mr Geoff Harding of Lyons Tetley, commemorating the sale of the 5,000th Macrojet ink jet printer

jets, Domino's printers can match the speed of modern machinery, placing unique labels on a vast range of surfaces—any kind of drug container, motor spare parts, beer kegs or even the fragile skins of avocados. The Star newspaper relies on Domino machines to print the numbers for its bingo game.

The majors in the printing industry have largely ignored ink jet, "thinking that the market for it was too small," claims Mr Alan Barrell, group managing director.

However, every decree on food and drugs out of the EEC generates ever greater demand for clear labelling, self-by dates and batch numbering. And the idea of the most modern robot-run warehouse being dependent on a human running around with a £280 roller coder is inevitably losing ground.

Consequently, "the market is much larger than anyone ever thought," says Mr Barrell. Domino does have competitors, AB Dick in the US with its Video Jet and Wooljet Industries, a private UK company which is just moving into the small print area.

Last year Domino lowered the price of its basic unit by £1,000 knocking about one-seventh off the price, at least partly to keep would-be challengers on their toes.

Domino began life in 1978 printing serial numbers on lottery ticket books. In the spring of 1981, the EEC ordered that all perishable goods should be labelled with "best before..." dates and the company was launched on to the serious growth track.

By 1983 it had entered a licensing agreement with American Technologies Inc, which had previously been distributing a rival product at home and in Europe. ATI and Domino pooled sales forces on this side of the Atlantic and the US company began selling the Cambridge company's printers in America.

This relationship has another plus for Domino—most of the inks used by Domino were developed by ATI and are now manufactured for it under licence in the UK.

Two years after the ATI deal, Domino was taken over by the market by merchant bank Hill

Samuel in a 200p offer of 5.5m shares, 42 per cent of the issued total.

Such was the demand for the shares that the offer closed 44 times subscribed. At flotation Domino was valued at £28m, compared with today's almost £90m.

The company's profit record has also been strong, up from £121,000 pre-tax in the year to November 1982 to £2.65m in 1986 and then on to £3.61m last year. Operating margins hit 25 per cent last year and the company boasts a 56 per cent return on shareholders funds.

The main target markets now lie outside the legislation induced compulsory labelling areas where companies see Domino's products as a necessary evil rather than a contribution to profits.

However, in the cosmetics, graphic arts and printing industries, ink jet has something to contribute — and these customers are less concerned at price and more worried about performance.

So whereas food packaging, dairy products, pharmaceuticals, brewing and soft drinks constituted 58 per cent of sales 1981-86, the general industrial printing categories are the ones most likely to grow more rapidly over the next five years.

This is where Mandergraph fits in. With sales of £1.4m in 1986 and a loss of £19,000 it has developed an addressing system which had already won major contracts — the Inland Revenue is its largest customer.

Domino believes it can couple Mandergraph's systems and mechanical handling technology to a wide range of applications.

From small beginnings, Domino has grown quickly and is now reaching out to put its finger in many ink jet pies both at home and abroad.

Gt Western leaps to \$4m

BY LUCY KELLAWAY

Great Western Resources, the US energy group quoted on the London stock market yesterday announced pre-tax profits more than doubled to \$4m from \$1.7m for the six months to March. The figures were boosted by the inclusion for three months of the year of the company's recent Bow Valley and Kenai acquisitions.

Mr Daniel Penna, Great Western's chairman said yesterday that during the first half the company had taken a "major step towards its ultimate goal and has become a large, diversified natural resources company". He said that he was confident about the future, in which further acquisitions were planned, and was therefore proposing a 10 per cent increase in the interim dividend to 1.57p a share.

Turnover in the period increased from \$10.4m to \$37.9m, with a first time contribution of \$24m from Bow Valley's coal operations. Provision for taxes was \$1.9m, compared to \$493,000, and net income was \$2.1m against \$1.2m.

As a result of the acquisitions, group asset value increased sharply, and by the end of March gross assets were

\$272.1m, while cash balances were \$27.8m.

While the City still thinks of Great Western Resources as one of those unfortunate US oil stocks which made an overvalued debut on the London stock market a few years ago, the share price has recently been telling another story. A rise of more than 300 per cent so far this year shows that someone at least approves of Mr Penna's relentless ambitious expansion. Over the last two years he has gone for ever bigger targets, broadening the spread of assets, and financing the deals with ever more complicated classes of preference

shares—for which the Kuwait Investment Office has fortunately developed a voracious appetite. With the latest acquisition he has taken the company into coal, buying at what appeared to be a knock-down price large US coal assets. These results show merits of the deal, which has improved cash flow, and added to the steadily rising earnings through the longer-term contracts under which the coal is sold. Although Penna is not likely to rest yet, the shares may need more information on this outcast stock before pushing the price up further.

COMPANY NEWS IN BRIEF

RANKS HOVIS McDougall: By 3 pm yesterday the company had received acceptances from holders of 25,569,101 Avana Group ordinary (90.8 per cent of shares for which the increased offer was made and 72.5 per cent of the issued ordinary share capital). Prior to announcement of offers on February 8, 1987 RHM had acquired 7.1m shares (10.2 per cent). RHM therefore now owns

or has received acceptances in respect of a total of 32,669,101 ordinary Avana shares (92.6 per cent).

RODGSON HOLDINGS has agreed terms for the acquisition of John G. Ashton (Funeral Directors), of Altrincham, for £105,500 cash. For year to end June 1986 Ashton had a turnover of £143,000 with pre-tax losses of £3,000. Net tangible assets amounted to £111,000.

Wolseley pays £5.3m for Keith Johnson Photo.

Wolseley, the heating and plumbing merchant, yesterday agreed to acquire Keith Johnson Photographic, a distributor of professional photographic equipment and materials, for £5.3m.

The acquisition of Grovewood Securities from BAT Industries in March 1986 moved Wolseley into new areas and this purchase is part of a series of "filling" acquisitions. Wolseley already owns Fromandis, a photographic equipment distributor.

In 1986, KJP made pre-tax profits of £351,000 on sales of £13.8m and its assets at the end of the year were valued at just over £1.5m.

Consideration will be in the form of £20,000 ordinary shares, 0.9 per cent of the existing equity, which will be placed on behalf of the vendors by Rowe & Pitman.

Fisher rights
Acceptances were received in respect of 94.89 per cent of the 54,753,532 new ordinary shares offered by way of rights in the 1987 "Fisher Rights". The new shares not taken up have been sold by the underwriters at a net premium of 10p per new ordinary.

DIVIDENDS ANNOUNCED

	Current payment	Date of payment	Corresponding dividend	Total last year
Amersham Intl.	5.4	Aug 10	4.58	8.2
Electronic Rentals	2.07	July 30	2.07	2.23
Great Western Resources	1.57	July 30	1.57	2.98
Hardanger Frøysa	4.74	July 3	3.55	11.38
Hazlewood Foods	1.21	Oct 1	0.92*	2.2
Northumbrian Foods	0.56	—	—	0.56
Investment Co.	0.8	Sept 1	0.73	1.25
Millward Brown	1.75	—	—	1.75
NMC Invest.	—	Oct 1	1	1.5†
Sanders & Sidiy	0.5†	July 10	—	1.5
Yellowhammer	1.5	—	—	2.1
York Mount	1	July 24	1	2

Dividends shown pence per share net except where otherwise stated. * Equivalent after allowing for scrip issue. † On capital increased by rights and/or acquisition issues. ‡ USM stock. § Unquoted stock. ¶ Third market. † Gross. ** For five months.

GRANVILLE SPONSORED SECURITIES

High Low	Company	Price Change	Gross Yield	P/E
161 133	Ass. Brit. Ind. Ordinary	160	7.2	4.8
103 148	Ass. Brit. Ind. CULS	103	10.1	8.1
38 34	Amitege and Rhodes	36	4.2	11.7
80 67	BBS Design Group (USM)	76	1.4	1.8
245 215	Bardon Hill Group	245	+2	4.8
188 85	Bry Technology	165	4.7	3.0
162 130	CCL Group Ordinary	162	11.9	7.1
117 99	CCL Group 11pc Conv. Pref.	117	18.7	12.4
144 136	Carbonium Ordinary	144	5.4	3.7
94 91	Carbonium 7.5pc Pref.	94	10.7	11.4
100 87	George Blair	100	3.7	3.7
143 119	Isla Group	120	—	—
128 119	Jackman Group	128	-3	8.8
376 321	Jama Burrough	376	4	4.8
95 86	Jama Burrough 5pc Pref.	95	12.9	13.8
780 530	Multihouse NV (AmstSE)	530	—	21.0
423 381	Recon Ridgway Ordinary	423	1.4	—
85 53	Recon Ridgway 10pc Pref.	85	14.1	16.4
81 80	Robert Jenkins	81	—	—
103 42	Serutons	103	+1	—
188 141	Torday and Carlisle	168	+2	6.6
363 321	Trevlin Holdings	363	+3	7.9
105 73	Unitec Holdings (SE)	105	2.8	2.7
157 115	Walter Alexander	157	5.0	3.2
156 150	W. S. Yeates	156	7.7	8.5
118 96	West Yorks. Ind. Hosp. (USM)	107	5.5	6.1

Granville & Company Limited
8 Lovat Lane, London EC3R 8BP
Telephone 01-621 1212
Member of FIMBRA

Granville Davies Coleman Limited
27 Lovat Lane, London EC3R 8BT
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INTERNATIONAL LEISURE GROUP PLC

US\$109,583,389

Cross Border Lease Financing
of
Four Boeing 737-3S3 Aircraft
plus Spare Engines

Debt Manager

BARCLAYS BANK PLC

The undersigned structured and arranged this transaction

Nomura Babcock & Brown Co Ltd

AML Babcock & Brown

March 1987

Asset Secured Loan Facility
for
Four Boeing 737-3S3 Aircraft
plus Spare Engines

Lead Manager
Barclays Bank PLC

Provided by
Barclays Bank PLC
Chemical Bank (London Branch)
Credit Lyonnais (London Branch)
Girozentrale und Bank der österreichischen
Sparkassen Aktiengesellschaft (International Branch)
Bank of Tokyo International Limited

Agent Bank

BARCLAYS

The undersigned acted as advisor to ILG on this transaction

AML Babcock & Brown

March 1987

UK COMPANY NEWS

Electronic Rentals 12% up despite Connect loss

BY DAVID WALLER

Electronic Rentals Group, the television rental and retail concern, yesterday announced taxable profits of £18.5m for the year to the end of March 1987, up 12 per cent, despite £5m losses at Connect, the recently-acquired electrical retail chain.

The results were at the top end of stockbrokers' forecasts and the shares rose 4p to close at 64p.

Mr David Hurley, managing director, conceded yesterday that the retail market for brown and white goods, which ERG had attempted to enter with the acquisition of Connect in October 1985, had been tougher, and more expensive than expected.

The lead time to get turn-over up to a level where it would have yielded a profit was

too long," Mr Hurley said. ERG has subsequently sold many of its Connect stores to Wiggins, the electrical retail and rental group, and merged some of the more profitable branches with ERG's existing Visionhire outlets.

Troubles at Connect were largely behind the 17 per cent decline in operating profits at the UK Consumer Electronics division. This made £17.5m, against £21.1m last year.

Mr Hurley said that performance from ERG's RDC Connect retail business, included under this division, was encouraging. But he was not prepared to give a breakdown between this and the group's traditional rental business.

Profits from the Overseas

Rental division increased to £6.8m (£6m). Business Systems and Communications increased from £100,000 in the previous year to £3.67m, reflecting acquisitions made during the year. Captive insurance companies contributed £1.58m, against £1.06m.

As a group, turnover rose 20 per cent to £306.71m. Depreciation increased to £76.94m (£72.18m). Borrowings fell from £108m to £94m, equivalent to shareholders' funds. Earnings per share rose from 3.8p to 3.7p. The board recommended an unchanged final dividend of 2.0655p, which is a maintained total for the year of 3.2322p.

The results arose after benefitting from a £3.1m reduction in the company's pension fund contributions.

Bank of Ireland in £53.3m rights

By Hugh Carnegie in Dublin

Bank of Ireland yesterday announced a heavily discounted rights issue to raise £53.3m (£32.51m) to back its plans to expand outside the depressed Irish home market.

The first of its type in Ireland, the issue is being made at a deep discount and is not being underwritten. Dublin dealers said it was likely to be greeted favourably.

It is being offered at 150p per one pound of capital stock on the basis of two pounds of new stock for each nine pounds held on May 29, 1987. Bank of Ireland shares closed last Friday in Dublin at 263p.

The bank, with Allied Irish Banks one of the big two Irish clearing banks, said it was too early to make a forecast for 1987/88, but it intended to maintain 1986/87 dividend rates on enlarged capital.

Last year's results, published last month, showed a 15.4 per cent rise in earnings per share to 31.5p and an almost 16 per cent rise in net profits to £50.09m. The total dividend was 11p.

Just over 30 per cent of profits were earned outside Ireland, mainly in the UK where most expansion has taken place. Earnings this year are expected to be boosted by contributions from UK mortgage arm of Bank of America acquired early this year and renamed Bank of Ireland Home Mortgages.

The bank wants to see overseas contributions to group profits rising to around the 50 per cent mark and is looking for further acquisitions in the UK and the US.

It said earnings in 1987/88 needed to rise by £22.2m to £53.3m to maintain last year's earnings per share as adjusted for the bonus element in the issue.

Dealings are expected to commence on June 11. The subscription price will be payable in full by July 1. The new stock will not rank for the 1986/87 final dividend due for payment on July 3.

Dale Electric chief 'over the moon' as Sunleigh bid fails

BY NIKKI TAIT

Dale Electric, the Yorkshire-based generator set manufacturer, has escaped the bid clutches of Sunleigh Electronics. By yesterday's final close, Sunleigh had either bought or attracted acceptances from holders of just 18.24 per cent of Dale's shares on behalf of its £16.8m offer.

But Mr Tony Merryweather, chairman of the ambitious revival stock, where FKI Electricals holds one-quarter of the shares and four former or current FKI men sit on the board, indicated that the company would not be abandoning the acquisition trail.

Sunleigh is "at an advanced stage of negotiation with a number of acquisitions," according to Mr Merryweather, with finalisation delayed by the Dale bid.

The possible purchases are all private businesses, and Mr Merryweather added yesterday that he was "hopeful of an early announcement."

Yesterday Mr Iain Dale, chief executive of Dale and son of the company's founder, said he was "delighted" over the "moon" at news of the bid outcome. The backing of the

bulk of the company's institutional holders, he added, was not "the short-termism of which we hear so much."

However, although both M & G and the Pru are believed to have backed the Dale defence, one major institution, Scottish Amicable, is thought to have accepted.

By the lunchtime close, Sunleigh had received acceptances from holders of 3.4 per cent of Dale's shares for its paper terms and from holders of another 6.3 per cent in respect of its cash alternative, which closed 11 days ago. Sunleigh itself amassed an 8.6 per cent holding in its target.

Dale, which is heavily dependent on export business, had tumbled into losses in 1985-86 during the course of the bid, however, it demonstrated a sharp recovery with forecast profits of £1.07m before tax in the year to May 1987. Sunleigh, which had promised a management revival, also took the unusual step of shutting off the cash alternative after six and a half weeks and the paper terms 10 days later.

Sunleigh shares fell 1p to 38p on the announcement; Dale lost 8p to 97p.

Electrolux to pay £42m in deal with Thorn EMI

BY KEVIN DONE, NORDIC CORRESPONDENT, IN STOCKHOLM

Electrolux of Sweden, the world's leading household appliances manufacturer, has finalised the takeover of the troubled white goods and commercial appliances divisions of Thorn EMI of the UK.

Electrolux said that it is to pay £42m for the acquisition, rather less than was indicated when the deal was first announced in April.

The purchase price is based on a discount of the net assets value of around £70m and includes a repayment of some £30m of debt.

The Thorn EMI white goods operations have annual sales of some £185m, while the food equipment division has sales of £40m. The operations have a total workforce of some 5,700. The acquisition will make Electrolux the market leader in the UK with a share of some

HANSON OVERSEAS FINANCE B.V.

NOTICE TO THE HOLDERS

of the 9½% Convertible Guaranteed Bonds Due 1996 ("the Bonds") of Hanson Overseas Finance B.V. ("the Company")

GUARANTEED BY

and convertible into Ordinary Shares of Hanson Trust PLC

AND

constituted by a First Supplemental Trust Deed dated April 30, 1981, being supplemental to a Trust Deed dated October 9, 1980 (collectively "the Trust Deed")

Redemption on November 14, 1986

The attention of holders of the Bonds is drawn to the Notice of Redemption published in the Financial Times on September 26, 1986, advising holders that it was the Company's intention to redeem all outstanding Bonds on November 14, 1986 ("the Redemption Date").

As Trustee for the Bondholders, The Law Debenture Corporation plc exercised its power under the terms of the Trust Deed to convert, on behalf of Bondholders, all Bonds not previously converted at the conversion rate applicable on the Redemption Date and arranged for the sale for the benefit of Bondholders entitled thereto of all Shares arising for such conversion.

Bondholders who have not yet presented their Bonds and received their entitlement to the proceeds of such sale (amounting to US\$4,559.126 per US\$1,000 Bond) are reminded that they may do so at any of the Paying and Conversion Agents' offices listed below. All Bonds so presented should be accompanied by all unexpired Coupons.

Principal Paying and Conversion Agent

Chemical Bank, 180 Strand, London WC2R 1HT

Paying and Conversion Agents

Kredietbank S.A., Arembergstraat 7, 1000 Brussels, Belgium
Chemical Bank, Ulmenstrasse 30, 6000 Frankfurt am Main
Bank Internationale a Luxembourg S.A.,
2, Boulevard Royal, Luxembourg.

Chemical Bank
Freigutstrasse 16
8039 Zurich

Chemical Bank
55 Water Street
New York, N.Y. 10041

U.S. \$100,000,000
Floating Rate Depositary Receipts Due 1992
Issued by Bankers Trust Company Limited (entirely owned by Bankers Trust Company, a subsidiary of Bankers Trust Company, New York, N.Y.)
Principal and interest on deposits with
Banco di Sicilia
(Established in the Republic of Italy as a Public Credit Institution)
London Branch
For the six month period 5th June 1987 to 7th December 1987
The Receipts will carry an Interest Rate of 9¼% per annum with a Coupon Amount of US\$3,950.52 per US\$100,000 Receipt.
Therelevant Interest Payment Date will be 7th December 1987.
Bankers Trust Company, London
Agent Bank

T. Cowie expands fleet with £1.9m acquisition

BY CLAY HARRIS

T. Cowie, the Sunderland-based motor group, yesterday consolidated its position as Britain's second largest vehicle leasing operator with the agreement to pay £1.9m for assets owned by Temeside Vehicle Rental.

The acquisition will increase Cowie's fleet to 26,000 vehicles, where it lags behind only Dial Contract, the Barclays subsidiary.

Interleasing, the Cowie subsidiary, is buying commercial vehicles, associated equipment and stock, a freshhold depot in Birmingham and leasehold facilities in Wolverhampton, Bristol and Cheltenham.

The assets in question produced three-month profits of £68,000, Cowie said.

The company also announced four board changes which Mr Tom Cowie, chairman and chief executive, said reflected the rapid expansion of the business. His son, Andrew, is to become

joint managing director and Mr Gordon Hodgson, finance director, has been named deputy chairman.

The elder Cowie emphasised that he was not preparing to step down.

Also joining the board are Mr Ian Jane, who will have responsibility for Cowie's 13 motor dealerships, and Mr Neil Pykett, who will develop the contract hire business.

Investment Co.

Revenue of The Investment Company advanced from £752,376 to £875,715 pre-tax over the year to end-March 1987. Profits on changes of investments totalled £165,411 compared with a previous £590,042.

Tax took £273,333 (£359,253) and earnings worked through at 4.5p (3.87p) per 25p share. A rapid expansion of the business. His son, Andrew, is to become

Hardanger Props. profits surge 46% to £1.75m

Hardanger Properties, the land developer and building group, yesterday announced a 46 per cent improvement from £1.2m to £1.75m in pre-tax profits in the six months ended March 31 1987 on turnover up 54 per cent to £7.37m, against £4.78m.

The directors said that early in April the acquisition of Broadly Brothers was completed, further increasing the company's asset base. They were negotiating for a number of major acquisitions and hoped to be able to conclude significant purchases during the coming months.

Tax amounted to £812,000 (£480,000), leaving attributable profits of £1.14m (£721,000) for earnings of 15.27p (10.78p) per 10p share.

The interim dividend is raised from 3.55p to 4.74p and the directors hoped to recom-

mend a higher increase when the full-year results were known.

Western Motor

Western Motor Holdings, the car-delivery contractor, is preparing to announce a further move into the motor distribution business. It asked for its shares to be suspended yesterday at 345p, where its market value exceeds £3.3m.

Samuel Montagu, the merchant bank, holds a 29.4 per cent equity stake in Western as part of a management buy-in and capital reconstruction it arranged early this year. The value of Montagu's holding has increased by more than 50 per cent in three months, from £1.6m to over £2.4m.

Millward Brown

Millward Brown, USM-quoted market research agency, yesterday turned in pre-tax profits of £1.24m for the 12 months ended March 31 1987. This compared with £187,000 for the five months to the end of March 1986.

The final dividend is 1.75p for a total of 3p (1p for five months). Earnings per 10p share were 12.5p, against 1.8p. Turnover for the year was £10.65m, compared with £2.71m in the previous five months.

BOARD MEETINGS

The following companies have notified dates of board meetings to the Stock Exchange. Such meetings are usually held for the purpose of considering dividends. Official indications are not available as to whether the dividends are interim or final and the sub-divisions shown below are based mainly on last year's timetable.

TODAY
Interleaves - Appliances, Bredstock, Greenwicks Resources, McLeod Russell, Neph Industries, Plastons (GB), Whewell.
Fines
British Benzol, N. Brown, Continuous Stationery, Deaktrial Gold Mining, Doornfontein Gold Mining, Drifordrain Consolidated, Electra Investment Trust, Kioof Gold Mining, Libenosa Gold Mining, Thomas Locker, London and Overseas Freighters, Metal Box, New Thompson Trust (1983), Regellan Properties, Rowlinson Securities, Ungate, Venturastep Gold Mining, Viskfontein Gold Mining.

FUTURE DATES
Interleaves - June 17
Lookers - June 17
Microgen - July 2
Fines - June 11
Amber Industrial - June 11
Argyll Group - June 25
BEF - June 18
Barbour Index - July 21
Caledonia Investments - June 11
Craig and New - June 12
Latham (James) - June 25
Mountview Estates - July 17
Sterling Industries - June 11

ANGLOVAAL GROUP
DECLARATION OF ORDINARY AND PARTICIPATING PREFERENCE DIVIDENDS—
YEAR ENDING 30 JUNE 1987

Dividends have been declared payable to holders of ordinary and participating preference shares registered in the books of the undermentioned companies at the close of business on 26 June 1987. The dividend is in the currency of the Republic of South Africa and the date for determining the rate of exchange at which the currency of the Republic will be converted into United Kingdom currency will be 6 July 1987, or such other date as set out in the conditions subject to which the dividends are paid. These conditions can be inspected at the registered office or office of the London Secretaries of the companies. Warrants in payment of the dividends will be posted on or about 31 July 1987. The transfer books and registers of members of the companies will be closed from 27 June to 3 July 1987, both days inclusive. All companies mentioned are incorporated in the Republic of South Africa.

Name of company (Ordinary shares, unless indicated otherwise)	Dividend declared Cents per share No. 1987 1986	Total for financial year Cents per share 1987 1986	Consolidated profit Estimated 1987 Actual 1986 R000	Amount absorbed by dividends 1987 1986 R000
Investment Companies (Anglovaal Limited) Reg No 05/04580/06	65 200 170	302.5 236	127 585 92 387	26 833 19 536
Participating preference (Share 1)				
Ordinary and "A"	63 380 330	586 480		
Midland Waterwasteland (Western Areas) Limited Reg No 05/04582/02	70 100 100	180 155	32 972 32 520	15 579 15 096
Zandepan Gold Mining Company Limited Reg No 05/02414/06	30 13.5 11	22.5 18.5	30 558 24 180	30 588 24 088

* Consolidated profit figures are after taxation, outside shareholders' interests and preference dividends but before extraordinary items, and amount absorbed by dividends includes preference dividends.

Notes
1. This declaration represents 5 cents in respect of the fixed rate of 5 per cent per annum for the half-year ending 30 June 1987 and 195 cents, being a 50 per cent participation in the final dividend of 390 cents declared on the ordinary and "A" ordinary shares.

By order of the boards
Anglovaal Limited
Secretaries
per: E. G. D. Gordon

London Secretaries
Anglo-Transvaal Trustees Limited
295 Regent Street
London W1R 6ST

Registered Office
Anglovaal House
56 Main Street
2001 Johannesburg
8 June 1987

THE BRITISH BANK OF THE MIDDLE EAST
SAFEGUARDS OLD VALUES AND TRADITIONS.

Today's world is one in which we've all become accustomed to instant communications and sophisticated information systems.

A world in which it's perhaps all too easy for us to forget that some things are simply too important, too precious to be hurried.

The patience and intricacy with which Arab fishermen weave a net is a form of craftsmanship that has been passed down from father to son for generations.

The British Bank of the Middle East has been actively involved in the Arabian Gulf for more than ninety years. And in all that time we've been as careful to safeguard the skills and values of the past as we've been committed to develop the skills and technology of the future.

It's a philosophy which has helped us to establish an unrivalled range of financial services to meet the needs of the region. And leaves us ideally placed to help you profit by our experience.

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Amersham International plc

A high-technology company providing specialised products for health care, life-sciences research, and industry.

Summary of results

for the year ended 31 March 1987 (unaudited)	1987 £'000	1986 £'000	Change
Turnover	148,491	119,760	+24%
Profit before taxation	22,080	17,554	+26%
Profit attributable to shareholders	13,350	12,268	+9%
Total dividend per share	8.2p	7.0p	+17%
Earnings per share	26.6p	24.5p	+9%

These results are an abridged version of the full accounts which will be filed with the Registrar of Companies.

- Record results for the seventh consecutive year.
- Medical products prominent in good all-round performance.
- Strong growth overseas: 88% of sales outside the U.K.
- Substantial investment in product development and manufacturing capacity.

The Annual Report will be posted to shareholders on 10 July 1987.

Copies may be obtained after that date from The Secretary, Amersham International plc, Amersham Place, Little Chalfont, Buckinghamshire HP7 9NA.

The Annual General Meeting will be held in London on 5 August 1987.

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THE BANKER 1987 TOP 500

Publication Date: 1st July 1987

The eighteenth edition of the TOP 500 will be published in the JULY issue of THE BANKER. This credit analysis and ranking of the world's 500 largest commercial banks and corporate treasurers throughout the world to be the most authoritative comparative data published. Each year THE BANKER has added new data to the information base which, combined with the previous 17-year historic performance research, provides the universally-accepted material necessary for inter-bank comparison. It is used continuously by bankers and corporate treasurers in over 135 countries throughout the year.

The information contains

1. Size by assets
2. Total deposits
3. Capital and Reserves
4. Net interest income
5. Pre-tax earnings
6. Pre-tax earnings on assets (%)
7. Pre-tax earnings on capital (%)
8. Capital/Asset ratio
9. Net interest on assets (%)
10. Number of employees

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THE BANKER

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UK COMPANY NEWS

NMC at £4.2m and set for further expansion

THE VASTLY restructured NMC Investments has shown profits before tax of £4.2m from turnover of £27m for the year ended March 31 1987.

That, said Mr Norman Gordon, chief executive, marked the first step in transforming NMC into a major specialist packaging group.

"We have achieved our growth with a series of acquisitions and through strong organic growth within those companies."

Mr Gordon, along with the advertising Saatchi brothers (Charles and Maurice) acquired a controlling interest in NMC in March 1986, and the restructuring began—the Saatchi's, however, did not join the board.

Since then capital issued in respect of acquisitions has cut Mr Gordon's interest from the original 20 per cent to around 9 per cent and the Saatchi's combined holding from 30 per cent to some 19 per cent.

During the year the company acquired Interplay, Rux and the Barker Group. Taking those in on a merger accounting basis,

the profit for 1986-87 was £2.5m and the turnover £23.6m. The reported figures for NMC for that year were £167,000 and £3.53m respectively.

Mr Gordon said the overall strategy was to continue the development of existing subsidiaries and to seek acquisitions which would bring good margins and increase earnings per share. A fortnight ago the company announced that it was buying A.J. Bingley, a privately-owned flexible packager, for £3.98m in shares.

As to the current year Mr Gordon said he looked for further success. It was intended to consolidate the success of the past year and take further significant steps to build NMC into a major group operating in the higher value added sector of the packaging industry.

Earnings for the year were 7.47p (5.92p adjusted) and the final dividend is 1p for a net total of 1.5p on capital increased by the acquisition issues. The cost is £495,000 (1p absorbing £86,000).

comment

After years of packaging everything from British Airways to the Conservative party, it is hardly surprising that the news of a Saatchi brothers stake in the packaging industry itself should cause the chosen company's shares to skyrocket. NMC's ordinary duty closed yesterday at 209p rather than the 11.5p they touched in October 1985, before the Saatchi's first intervention. As yet, NMC's progress is still in its early stage but its analysis of the industry seems sound—it believes that growth is to be founded in the low-volume, high margin products rather than in bulk goods. For the current year, volume growth at Interplay and Barker and improved margins at Rux and Bingley should push pre-tax profits up to £5.3m. However, the prospective p/e of 22 is anticipating the benefits of future deals rather than the expansion of existing businesses. Investors can afford to wait and see.

Emess to sell arm of Tenby for £17m

BY CLAY HARRIS

Emess Lighting is to sell Fraser & Glass, manufacturer of moulded plastic components for the motor industry, for £17m in cash to Serling Engineering Products, a subsidiary of Trinova, the US fluid power and plastics group.

Trinova, formerly Libbey-Owens-Ford, has paid handsomely—more than 40 times last year's earnings—for its beach-head in the British and European motor component industries.

It described the purchase yesterday as a "strategic acquisition" which was fully supported by its cash-flow analysis.

Emess, which specialises in domestic and commercial lighting, took control of Fraser only four months ago when it bought Tenby Industries from BSR for £42m.

Although Emess promised at the time not to sell any of Tenby for at least a year Mr Michael Meyer, chairman, said yesterday: "Some very nice Americans came along and made us an offer we couldn't refuse."

The disposal has the full

support of Fraser management and staff, Mr Meyer said. Emess was explaining to other parties involved in the Tenby deal the reasons for its change of mind.

Automotive plastics accounted for about half of Sterling's sales of £327.5m (£200m) last year. Although it supplies the leading US and Japanese manufacturers in its domestic market, Sterling has never before ventured overseas.

Emess will continue to review the future of Tenby's other two engineering divisions, its shares added 12p to 440p yesterday.

Fraser's products include bumpers, wheel trims and under-the-bonnet plastic parts. Based in Brierley Hill in the west Midlands, it has recently won supply contracts for Nissan in north-east England and Ford in West Germany to add to existing customers including Honda, Rover and Jaguar.

It contributed pre-tax profits of £636,000 on turnover of £8.6m in 1986. It is on course for sales of £12m this year, according to Mr Meyer. It had net tangible assets of £4.3m at the end of 1986.

Major sale by Eadie Holdings

BY JAMES BUXTON, SCOTTISH CORRESPONDENT

Eadie Holdings has sold its textile machine accessories subsidiary Eadie Bros. to the Japanese concern Kanai Juyo Kogyo for £2.35m cash.

Eadie Bros., which is Britain's leading producer of rings and travellers used in yarn spinning, accounted for £4m of the Eadie Group's turnover of £8.7m in 1986.

Eadie Holdings, which came to the USM last year, now intends to concentrate on its specialist wire division and to move its headquarters from Paisley to Manchester. The sale of Eadie Bros. has enabled the

group to eliminate its borrowing and leave a cash balance of more than £2m.

Yesterday Eadie Holdings also announced the acquisition of Auric Engineering, the holding company of Astrafer of Ware (Hertfordshire) which makes and distributes wire-braided fluorocarbon flexible piping. The purchase price of £235,000 is to be met by a share issue.

Eadie Bros has about 90 per cent of the UK market for rings and travellers and obtains some three-quarters of its sales revenues from overseas. Kanai claims 20 per cent of the world

market for these products, and believes that with Eadie Bros it will have 25 per cent.

Mr Paul Eadie, who is to be chairman and chief executive of Eadie under Kanai's ownership, said the deal would enable the company to increase its range of products. The Japanese company has given assurances on the future of the 94-strong workforce.

Mr Gary Smith, managing director of Eadie Holdings, said it did not wish to make the substantial investment with the long pay-back time that Eadie Bros. would require.

Riley talks terminated

BY CLAY HARRIS

Riley Leisure yesterday decided at last that Midsummer Leisure's £16.4m takeover bid really was the only game in town. Riley makes snooker tables and is Britain's largest operator of snooker clubs.

Mr Alan Deal, chairman, confirmed that Riley had ended talks with Charwood Leisure, privately owned operator of 24 snooker clubs. Charwood's terms for the proposed purchase by Riley of its assets and management had proved too high.

Mr Deal said the board, with the exception of one non-executive

director, had reluctantly recommended the Midsummer offer before the Charwood initiative emerged. By winning the support of Riley's preference shares last week, the pub and disco operator speaks for 21 per cent of its shares.

With Midsummer shares 9p lower at 416p, its share offer values Riley at 96p, against the market price of 92p, down 21p. There is a cash alternative of 82p.

At these prices, Charwood faces a loss on its purchase last week of a 1.9 per cent stake at an average cost of more than 97p.

SHARE STAKES

Aestas & Hutchison—Director J. Weir disposed of 30,000 ordinary at 435p and now holds 449,819.

Addison Consultancy Group—On June 2 the following directors sold ordinary at 150p: M. Page 700,000; S. Smith 700,000; J. Broad 300,000; I. McQuattie 60,000.

Bejam Group—Chairman J. D. Apthorp sold 200,000 ordinary at 208.5p.

Carlson Communications—Directors M. P. Green and J. H. Beadie have disposed of 700,000 and 300,000 ordinary respec-

tively at £13.85. Central Independent TV—Director C. J. Eady sold 30,000 shares.

Cliff Oil Holdings—Director J. G. Cluff purchased 15,000 ordinary at 89p.

Flages—Executive director T. Clearly sold 50,000 ordinary at 320p.

Grand Metropolitan—Chairman Sir Stanley Grinstead sold 22,000 ordinary at 550p.

Macro 4—Mr J. Chapman disposed of 140,000 ordinary shares. He remains interested in 1,233,700 shares (5.7 per

cent). Marley—P. H. Aldridge disposed of 24,500 beneficial ordinary at 165p and 500 non-beneficial ordinary at 165p.

Microfilm Reprographics—S. H. Cordery and M. J. Booth exercised options in respect of 100,000 ordinary placed at 535p.

Polymark International—Director L. O'Rice sold 30,000 ordinary and purchased 7,500 preferred "A" shares.

Raine Industries—E. Stanger has sold 2m ordinary, reducing his beneficial holding to below a notifiable interest.

Northumbrian Foods ahead of forecast

Northumbrian Fine Foods yesterday reported a 52 per cent rise in pre-tax profits for 1986-87 and at the same time said it was expanding in the health food market via two acquisitions for a little over £1m.

During the first few months of 1987 the directors have been strengthening the management of NFF's core company, Shaw Biscuits, and have appointed a new general manager, quality

control manager and product development manager.

The year to March 31 saw turnover improve from £3.1m to £3.42m and profits advance from £350,000 to £532,000 at the pre-tax level—the company came to the USM last December forecasting profits of not less than £450,000. Earnings per 60p share improved to 5.72p (3.25p).

Shareholders are to receive the promised 0.56p dividend. Had the shares been traded for

a full year a total of 1.7p would have been paid on the basis of the forecast figure.

The larger of the two acquisitions is that of Sunwell Foods, maker and distributor of muesli, cold pressed oil, sugar-free spreads under the Sunwheel label and carob snackbars under the Kalibu label. Sunwell has an annual turnover of around £2m. Consideration is expected to be £1m.

The company is also paying some £25,000 for the packaging stock of Shildon Foods, maker of flapjacks under private label and also under its own Milliford label. Shildon has a turnover of some £500,000.

The directors said that with the acquisition NFF was progressing towards its ambition of becoming a major manufacturer in the health food industry. It was also looking for top quality food company's not in the health-food field.

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Dated 10th April, 1987

THE NEWSPAPER INDUSTRY

The Financial Times proposes to publish a Survey on the above on

THURSDAY JULY 23 1987

Topics proposed for discussion include:—

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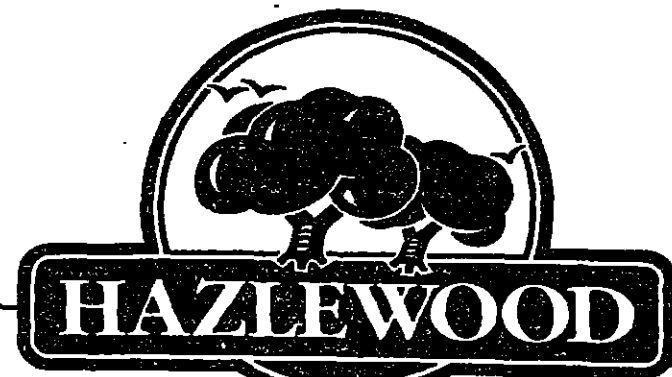
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PRELIMINARY RESULTS

Extract from the Preliminary Results for the year ended 31st March 1987

	1987	1986	
Turnover	£189.2m	£123.1m	+54%
Profit before tax	£18.6m	£11.1m	+68%
Earnings per share	9.9p	7.5p	+32%
Dividend per share	2.2p	1.6p	+37%

(paid as proposed)

"We are confident that the product range we have created will provide the platform for sustained organic growth well into the 1990's."

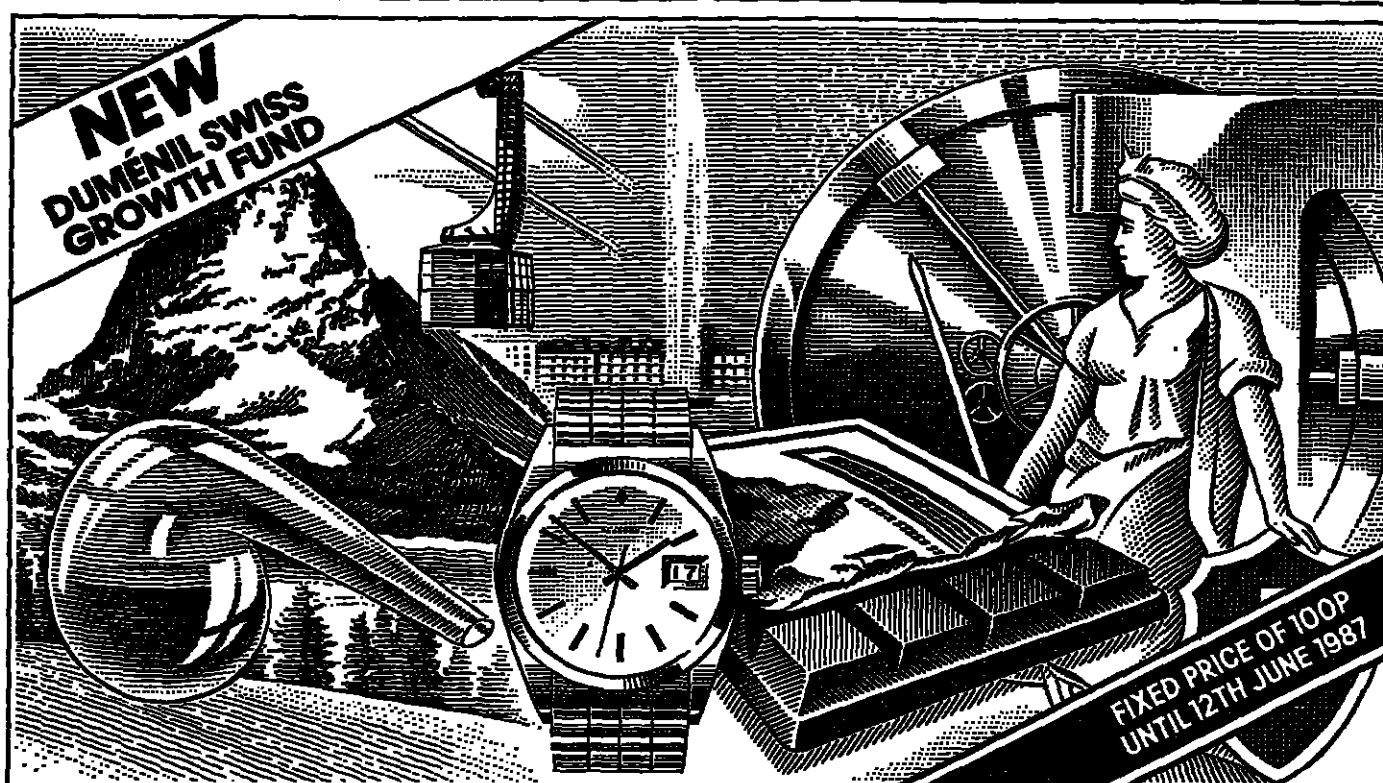
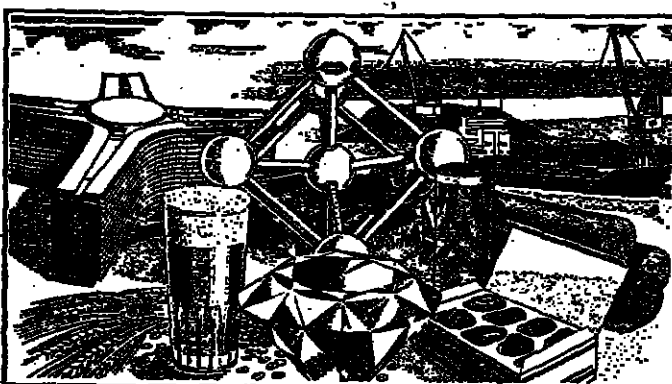
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Duménil Unit Trust Management's style is unique. All Duménil funds are UK authorised unit trusts, administered and managed in London, but on the advice of a well established and highly respected Investment House or Bank in each of these countries. In this way, the investor can easily access these markets and benefit from the expertise and experience of a local investment adviser with a proven track record.

DUMÉNIL ITALIAN GROWTH FUND

Italy is one of Europe's fastest growing economies. Resilient to political changes and to the recession of the late 1970's, Italy's GNP has recently overtaken that of the UK and is now comparable to that of France.

Lower energy costs, falling inflation and lower interest rates have led to a tremendous surge in corporate earnings—up 70% in 1984, 45% in 1985 and 45% plus predicted for 1986.

Attractive Prospects Over £10 billion of new equity raised by Italian companies in 85/86 has lowered financing costs and provided new production facilities—and the full benefits have yet to show in earnings. Last year's correction in the Italian Stockmarket has provided a sound buying opportunity—certain to be supported by strong domestic investment. Italy also has an uncommonly high household savings rate, higher even than that of Japan. This is not a recent development, since a high propensity to save has been a constant feature of the Italian economy for decades.

The Fund Duménil Italian Growth Fund is a UK authorised unit trust aiming for maximum capital growth through carefully researched and selected opportunities on the Italian Stockmarket.

The Fund will benefit not only from the management skills of Duménil

Unit Trust Management Limited, but also from the expertise of Euromobiliare, one of Italy's foremost investment advisers, based in Milan and currently managing clients' portfolios in excess of £1 billion.

DUMÉNIL GERMAN GROWTH FUND

The industrial excellence and technological skills of Germany need little introduction. This is one of the world's three leading economies, and the Deutsche Mark is an important reserve currency. In spite of the Deutsche Mark's strength, Germany continues to enjoy vast export markets—US\$ 300 billion in 1986—and a healthy domestic economy.

Time to Buy The German Stockmarket has been unselectively sold on exaggerated fears of the effects on exports of the high Deutsche Mark and is now, we believe, substantially undervalued. It lists many world-leading companies that should feature in any well-balanced portfolio and their attractions, at current levels, are fast becoming evident to the large institutional investors of the USA and Japan.

The Fund Duménil German Growth Fund is a UK authorised unit trust aiming for maximum capital growth through careful research and active investment principally on the Frankfurt Stock Exchange.

The Fund will be advised by one of Germany's leading and longest established private banks, George Hauck & Sohn in Frankfurt, and managed by Duménil Unit Trust Management Limited in London.

DUMÉNIL SWISS GROWTH FUND

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A regular current account surplus, minimal unemployment, negligible inflation and low interest rates all contribute to a safe, solid and stable environment for long term growth. These exemplary economic strengths are diversely reflected through banking, insurance, chemicals, pharmaceuticals, engineering, food processing and service industries.

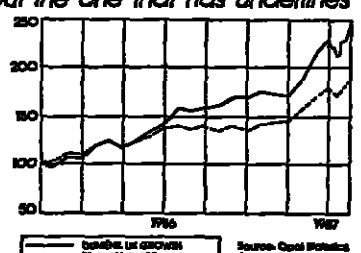
Investment Opportunities Switzerland offers a useful combination of strong, defensive investment (such as banking) with excellent individual investment opportunities—in particular, the increasing number of high quality companies seeking new listings. Another potential source of growth for UK investors is, of course, the continuing strength of the Swiss Franc.

The Fund Duménil Swiss Growth Fund is a UK authorised unit trust aiming for maximum capital growth through selective and active investment in the Swiss Stockmarkets. The fund will be managed by Duménil Unit Trust Management Limited in London. Advisers to the fund are Pictet & Co. in Geneva, one of the world's leading private banks, established in 1805, who manage assets of £12 billion and are widely respected in Switzerland and abroad for the quality of their research and analysis.

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Duménil is a performance-oriented fund manager. The majority of Duménil's specialist funds have not yet been established sufficiently long to provide meaningful performance figures, but the one that has underlines the point.

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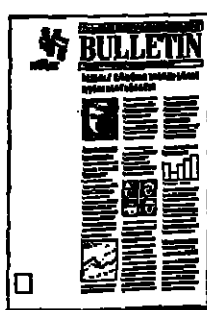
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June, 1987



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May 1987

UK COMPANY NEWS

Acquisitions help lift Hazlewood to £18.6m

Boosted by acquisitions, Hazlewood Foods announced a 98 per cent advance into a record £18.6m (£11.1m) in pre-tax profits for the year to March 31 1987.

The improvement also reflected organic growth with the base business achieving a 34 per cent increase in profits. Mr John Lowe, chairman, said that following successful initial investments in Kanes Food Products and Crisp Produce in the salad produce sector, and Bard Brothers in the confectionery and snacks sector, Hazlewood had identified both sectors as offering substantial potential for innovation and long-term profit improvement.

The company had secured its base in the salad produce sector by extensive capital expenditure and rationalisation in the Crisp Produce and Kanes Food Products operations. This had resulted in a quantum upgrading of the production facilities and provided a platform for both long and short term organic expansion of those businesses.

The acquisition of Ken Perrett (Evesham) and Van Heyningen Brothers had added to that base. Mr Lowe said those investments and acquisitions had resulted in the group

becoming the largest controlled atmosphere horticulturalists in Europe.

The entry into the confectionery and snacks market exposed a significant potential for a high turnover in specialist niche areas of that major market. During the year six companies had joined the group to add to its base and at the beginning of the current year Dragees aus Wesche, a West German specialist chocolate manufacturer, was acquired. The integration of those companies and the enlargement of their produce range would provide a sound base for the future.

Mr Lowe concluded that over the past five years the group had created a product range second to none in the UK. He was confident that this would provide the platform for sustained organic growth well into the 1990s.

Turnover last year rose 54 per cent to £189.2m (£123.1m); deducting cost of sales £153.1m (£91.8m), the gross profit emerged at £36.0m (£31.3m). Distribution costs amounted to £18.19m (£9.59m) and administrative expenses to £16.8m (£8.83m) leaving trading profits of £21.05m (£12.9m). Interest charged was £2.4m (£1.79m). Tax took £4.75m (£2.35m), minorities £28,000 (nil) and

extraordinary items were £1.19m (£752,000). Earnings per share were 32 pence higher at 9.86p (7.45p).

The dividend is raised from 1.6p to 2.2p with a final 1.2p per 10p share.

comment

The Hazlewood recipe is by now well known to the market — start with a base of pickles, stir in chilled and frozen foods, salad produce and a few snacks, add a healthy portion of financial controls and spice the mixture with options and earn-outs for the management of the acquired companies. The result is extremely palatable as witnessed by these figures, which were around a million above market estimates.

although election jitters held the shares to a rise of just 4p to 250p. There seems no reason why the pace of expansion should slacken; Hazlewood still has some way to go before its market cap catches up with Hillsdown and its market share in areas like snack foods is still quite small. Assuming pre-tax profits of £27m this year, the prospective p/e of 19 looks pretty fearsome but investors' appetite for the shares is unlikely to be sated for some time.

Sanders and Sidney tops its profit forecast

Sanders and Sidney has turned in pre-tax profits of £581,000 for the year ended March 31 1987. This compared with a minimum £350,000 forecast and with a restated £213,000 for the previous year.

The company was floated on the USM in February at 100p per share; yesterday the shares gained 5p to 160p. The company offers a counselling service to executives who lose their jobs with client organisations and helps them find new positions.

Mr Deryck Sidney, executive chairman, said he was confident that in an expanding market the company would continue to "enjoy considerable growth."

The first regional office had been set up, in Glasgow. An agreement had been signed with a Finnish consultancy under which the company would provide advice and services to assist in establishing outplacement in Finland. And other developments were being considered.

Turnover in the year came to £1.57m (£895,000). After tax £208,000 (£80,000) earnings worked through at 9p (3.2p) and the final dividend is the promised 0.5p net.

Eagle Trust £29m rights and acquisition

BY NIKKI TAIT

WITH INK barely dry on last March's three-way merger between Eagle Trust (formerly the ill-fated Audiomatic Holdings), the quoted Mitchell Somers engineering group, and City Partnerships, the combined company yesterday announced a £28.6m rights issue, together with its first purchase — a private Nottingham-based builders merchant.

Eagle is raising the money via a two-for-five issue at 20p share. The cash call will involve the issue of up to 151m Eagle shares, representing about 37 per cent of the existing issued capital. Directors, who hold over 12 per cent of Eagle's

shares, say they plan to take up their rights.

Yesterday, Eagle shares eased 10p to 231p.

Eagle is using £7.645m of the rights money — together with the issue of the further 11m shares — to fund the purchase of Pavis Group, a 30-year-old merchandising business which supplies domestic plumbing and heating products. Mr John Ferriday, chief executive, says that the Nottingham-based company, together with its management team, will strengthen Eagle's predominant distribution division which (including electrical distribution) currently accounts for around three-quarters of its business.

The plumbing and heating distribution side will now have 15 branches — three added by Pavis — and founder Mr Derek Pavis will become its managing director. In the year to end-April 1986, Pavis made pre-tax profits of £792,000 on sales of £17.4m. However, Mr Ferriday says that £1.5m has been warranted for the current year — though this increase partially reflects the company's switch from private status, lower pension provisions and the like.

At end-April, Pavis's net assets were put at £4m, of which £1.5m is said to be in cash. Pavis's vendors will be selling their rights on the 11m shares.

The remainder of the rights issue money will go to reduce borrowings and provide working capital in the short-term. However, Eagle says that other acquisitions are planned — with certain quoted companies in its sights — and the cash will give added flexibility. Expansion plans cover both manufacturing and distribution, though any additions to the former will tend to concentrate on products which can be supplied to the builders' merchandising and electrical distribution business. If all plans come to fruition, Mr Ferriday expects the distribution side to account for about 80 per cent of Eagle's businesses.

Purchase boosts York Mount to £976,000

By Janice Worman

THE GROWING rent and contract hire market boosted new subsidiary's results and helped York Mount Group, the USM-quoted construction, property and printing group to swell its 1986 pre-tax profits from £176,000 to £976,000.

Turnover rose by 59 per cent to £4.07m and earnings per share lifted from 2.8p to 4.61p. York Mount acquired CSL Truck and Trailer Hire on December 31 and incorporated its results for the previous 15 months to bring its October year-end into line with the parent group.

Mr Neil Balfour, the chairman appointed in August 1986, said the board's future policy was to extend the group's range of businesses and earnings both organically and by acquisition. "We have covered the group from a small property business with weak earnings into a holding company. I hope to build it further; we are looking at other possible acquisitions and we have a much sounder base to build on than we had last year."

Meggitt

Meggitt Holdings, the aerospace and engineering group, yesterday announced agreements to acquire for £13m B.A. Holdings, the defence and aerospace company that was subject to a management buyout from Vickers in 1985.

The purchase is to be satisfied by issue to B.A. management and institutional investors of 7.14m new ordinary shares of Meggitt. Some 3.51m of the new shares are to be placed with institutional shareholders in Meggitt at 150p each.

Control Securities

Control Securities, the property investment and dealing group headed by Mr Nazdin Virani, is to acquire six properties from the Mountleigh Group for £8.75m, to be met by the issue of 19.44m shares at 45p. Mountleigh will retain 9.44m shares, some 8 per cent of the enlarged capital, and the balance will be placed with the clients of stockbroker Fiske & Co.

Westwood

Westwood Dawes, the troubled mechanical handling engineering company, is to seek an adjournment of the June 10 extraordinary general meeting until June 17.

This will give shareholders more time to consider the terms of a rights issue in connection with the proposed acquisition of Hugh J. O'Neill, which is wholly owned by Mining & Allied Investments of Jersey.

After the adjournment of the June 1 meeting to approve the acquisition and rights issue, Mining and Allied has agreed to give Westwood shareholders the opportunity to purchase 3.5m of the 7m new ordinary shares to be issued to M&A.

This announcement appears as a matter of record only.



ACAL LIMITED

acquired in December 1986, from Auriema International Group Inc. all its European subsidiaries in:

West Germany
Belgium

The United Kingdom
The Netherlands
Sweden

France
Italy

and subsequently merged, in February 1987, with

CENTRE INDUSTRIES LIMITED

and its subsidiaries

Dean Electronics Ltd
Dean Microsystems Ltd
Tiptonics Inc

Equity funds for the initial acquisition were provided by:

Management
Investors in Industry plc
Auriema International Group Inc

Term debt facilities and guarantees were provided by:

Barclays de Zoete Wedd Ltd

Mezzanine term debt facilities were provided by:
Investors in Industry plc



ACAL owns and manages the combined operations of Auriema Europe and Centre Industries. With eleven operating companies in eight countries, 250 employees and sales in excess of £34m, it possesses significant multi-national expertise in electronics, refrigeration and industrial controls.

This advertisement is issued in compliance with the requirements of the Council of The International Stock Exchange of the United Kingdom and the Republic of Ireland Limited

SPONG HOLDINGS plc

(Registered in England No 101158)

Issue of

3,812,222 35 per cent.

Convertible Cumulative Redeemable Preference Shares of 20p each

The Council of The Stock Exchange has granted permission for the whole of the above stock ("the Stock") to be admitted to The Official List.

In accordance with the requirements of the Council of The Stock Exchange two market makers have been offered a participation in the marketing of the Stock.

The Stock is being issued in connection with an offer by Spong Holdings plc for Norank Systems PLC. Listing particulars relating to the Stock are available in the Extra Statistical Service. Copies of the listing particulars may be obtained during normal business hours on any weekday, Saturdays excepted, until 11th June, 1987, from the Company's Announcements Office of The Stock Exchange, London EC2 and up to and including 23rd June, 1987 from:

Spong Holdings plc
22 Oldbury Place,
London W1M 3AL

Robert Fleming & Co. Limited
25 Copthall Avenue,
London EC2A 7DR

Brokers to the issue were:

Chase Manhattan Securities
72/73 Basinghall Street,
London EC2V 5DP

Sheppard
1 London Bridge,
London SE1 9QU

9th June, 1987

Notice of Redemption

Sunkist Overseas Finance, N.V.

10% Guaranteed Notes Due 1990

*Cusip No. 867365 AA

NOTICE IS HEREBY GIVEN that, pursuant to the provisions of the Fiscal Agency agreement, dated as of July 15, 1983 between Sunkist Growers, Inc., (the "Company") and Citibank, N.A., (the "Fiscal Agent"), under which the above described Notes were issued, \$8,000,000 aggregate principal amount of said Notes will be redeemed through the operation of the mandatory and optional Sinking Fund provisions on July 15, 1987 (the "Redemption Date") at the redemption price of 100% of the principal amount thereof together with accrued interest to the date of redemption.

COUPON DEBENTURES OF \$1,000 PRINCIPAL AMOUNT

1	505	1003	1543	1987	4214	5405	5822	6281	6842	7490	7954	8454	8832	9277	9929	10412	10841	11440	11987	12436	12920	13423	13906	14428	14944	15451	16041	16511	17094	17491	17975	18432	18841	19489	20022	20564	21010	21520	22001	22475	22969	23458	23954	24454
2	510	1008	1548	1992	4219	5410	5827	6286	6847	7500	7964	8464	8842	9287	9939	10422	10851	11450	11997	12446	12930	13433	13916	14438	14954	15461	16051	16521	17104	17501	17985	18442	18851	19500	20033	20575	21021	21531	22012	22486	22980	23469	23965	24465
3	515	1013	1553	2000	4224	5415	5832	6291	6852	7505	7969	8469	8847	9292	9944	10427	10861	11460	12007	12461	12950	13443	13926	14441	14957	15464	16054	16524	17107	17504	17989	18446	18855	19504	20037	20579	21025	21540	22021	22495	22984	23473	23969	24469
4	520	1018	1558	2005	4229	5420	5837	6296	6857	7510	7974	8474	8852	9297	9949	10432	10866	11465	12012	12466	12955	13448	13931	14451	14962	15469	16059	16529	17112	17509	17994	18451	18860	19509	20042	20584	21040	21550	22031	22505	22994	23478	23974	24474
5	525	1023	1563	2010	4234	5425	5842	6301	6862	7515	7979	8479	8857	9302	9954	10437	10871	11470	12017	12471	12960	13453	13936	14461	14967	15474	16059	16529	17115	17512	17999	18456	18865	19514	20047	20589	21046	21561	22042	22516	23000	23489	23985	24484
6	530	1028	1568	2015	4239	5430	5847	6306	6867	7520	7994	8484	8862	9307	9959	10442	10876	11475	12022	12476	12965	13458	13941	14471	14972	15479	16064	16534	17118	17515	18004	18461	18870	19519	20052	20600	21051	21566	22047	22521	23011	23500	23996	24490
7	535	1033	1573	2020	4244	5435	5852	6311	6872	7525	7999	8489	8867	9312	9964	10447	10881	11480	12027	12481	12970	13463	13946	14481	14977	15484	16069	16539	17122	17519	18009	18466	18875	19524	20057	20605	21056	21572	22053	22527	23016	23505	23991	24491
8	540	1038	1578	2025	4249	5440	5857	6316	6877	7530	7999	8494	8867	9317	9969	10452	10886	11485	12032	12486	12975	13468	13951	14491	14982	15489	16069	16539	17125	17522	18014	18471	18880	19529	20062	20610	21067	21582	22063	22537	23026	23515	24001	24491
9	545	1043	1583	2030	4254	5445	5862	6321	6882	7535	7999	8499	8867	9322	9974	10457	10891	11490	12037	12491	12980	13473	13956	14496	14982	15494	16069	16539	17125	17522	18014	18471	18880	19529	20062	20610	21067	21582	22063	22537	23026	23515	24001	24491
10	550	1048	1588	2035	4259	5450	5867	6326	6887	7540	8004	8504	8882	9327	9979	10462	10896	11495	12042	12496	12985	13478	13961	14496	14982	15494	16069	16539	17125	17522	18014	18471	18880	19529	20062	20610	21067	21582	22063	22537	23026	23515	24001	24491
11	555	1053	1593	2040	4264	5455	5872	6331	6892	7545	8009	8509	8882	9332	9984	10467	10901	11500	12047	12501	12990	13483	13966	14501	15017	15525	16110	16580	17132	17529	18019	18476	18885	19534	20067	20616	21082	21592	22068	22542	23031	23520	24006	24496
12	560	1058	1598	2045	4269	5460	5877	6336	6897	7550	8014	8514	8882	9337	9989	10472	10906	11505	12052	12506	13000	13493	13976	14506	15022	15530	16120	16590	17137	17534	18019	18476	18885	19534	20067	20616	21082	21592	22068	22542	23031	23520	24006	24496
13	565	1063	1603	2050	4274	5465	5882	6341	6902	7555	8018	8518	8882	9342	9994	10477	10916	11510	12057	12511	13005	13498	13976	14506	15022	15530	16120	16590	17137	17534	18019	18476	18885	19534	20067	20616	21082	21592	22068	22542	23031	23520	24006	24496
14	570	1068	1608	2055	4279	5470	5887	6346	6907	7560	8022	8522	8882	9347	9999	10482	10916	11515	12062	12516	13009	13505	13991	14518	15034	15549	16139	16609	17137	17534	18019	18476	18885	19534	20067	20616	21082	21592	22068	22542	23031	23520	24006	24496
15	575	1073	1613	2060	4284	5475	5892	6351	6912	7565	8025	8525	8882	9352	10004	10487	10916	11515	12062	12516	13009	13505	13991	14518	15034	15549	16139	16609	17137	17534	18019	18476	18885	19534	20067	20616	21082	21592	22068	22542	23031	23520	24006	24496
16	580	1078	1618	2065	4289	5480	5897	6356	6917	7570	8028	8528	8882	9357	10009	10492	10921	11520	12067	12521	13012	13508	13991	14518	15034	15549	16139	16609	17137	17534	18019	18476	18885	19534	20067	20616	21082	21592	22068	22542	23031	23520	24006	24496
17	585	1083	1623	2070	4294	5485	5902	6361	6922	7575	8031	8531	8882	9362	10014	10497	10926	11525	12072	12528	13015	13515	13991	14518	15034	15549	16139	16609	17137	17534	18019	18476	18885	19534	20067	20616	21082	21592	22068	22542	23031	23520	24006	24496
18	590	1088	1628	2075	4299	5490	5907	6366	6927	7580	8034	8534	8882	9367	10019	10502	10931	11530	12079	12531	13015	13515	13991	14518	15034	15549	16139	16609	17137	17534	18019	18476	18885	19534	20067	20616	21082	21592	22068	22542	23031	23520	24006	24496
19	595	1093	1633	2080	4304	5495	5912	6371	6932	7585	8038	8538	8882	9372	10024	10505	10934	11535	12082	12538	13022	13515	13991	14518	15034	15549	16139	16609	17137	17534	18019	18476	18885	19534	20067	20616	21082	21592	22068	22542	23031	23520	24006	24496
20	600	1098	1638	2085	4309	5500	5917	6376	6937	7590	8042	8542	8882	9377	10029	10508	10937	11536	12089	12541	13022	13515	13991	14518	15034	15549	16139	16609	17137	17534	18019	18476	18885	19534	20067	20616	21082	21592	22068	22542	23031	23520	24006	24496
21	605	1103	1643	2090	4314	5505	5922	6381	6942	7595	8045	8545	8882	9382	10034	10508	10937	11536	12092	12546	13026	13515	13991	14518	15034	15549	16139	16609	17137	17534	18019	18476	18885	19534	20067									

COMMODITIES AND AGRICULTURE

Philippines plans to smelt PNG copper

By Richard Gourlay in Manila

THE PHILIPPINES is close to signing a deal to import and smelt copper concentrate from Papua New Guinea that could lead to shipments of up to 100,000 tonnes a year.

The Philippine Associated Smelting and Refining Corporation will buy an initial 40,000 tonnes of copper concentrate from the Bougainville and Ok Tedi mines in Papua New Guinea once the final details of the deal are agreed, according to Mr Santiago Polido, the company's vice president. The first shipments are set to start in the third or fourth quarter of this year.

Pasar, which is a government-controlled company, already has a central bank allocation of foreign exchange and has verbal approval from the Department of Natural Resources, he said.

The company approached Bougainville and Ok Tedi early this year after negotiations to smelt metal on behalf of one of the PNG mines fell through. The company wants to diversify its sources of concentrate to become less dependent on Filipino producers and to gain experience processing foreign materials, Mr Polido says.

If the trial shipment and processing is successful he estimates that Pasar could import between 10 and 20 per cent of its 480,000 tonne annual requirement from PNG.

CRA of Australia holds a majority stake in Bougainville Copper while Broken Hill Proprietary Australia and Amoco are the largest minority shareholders of Ok Tedi Mining, each having a 30 per cent stake.

Pasar's main supplier, Marcor Corporation, has welcomed the decision to import concentrate from PNG, which will give additional flexibility to Filipino copper concentrate producers to export to the world market should Pasar's smelting costs become uncompetitive internationally, says Mr Pablo Paulino, Marcor's vice president for finance.

Last year Pasar produced 134,000 tonnes of copper cathode metal from 446,000 tonnes of copper concentrate.

LONDON METAL EXCHANGE WAREHOUSE STOCKS
(Change during week ending Friday)

Aluminium	-1,075 to 103,400
Copper	-1,450 to 107,250
Lead	-1,475 to 107,250
Nickel	-2,150 to 7,116
Tin	-385 to 27,680
Zinc	-3,425 to 29,900

Silver unchanged at 22,288,000

Broker claims LME's tin settlement rule 'invalid'

BY DAVID BLACKWELL

THE LONDON Metal Exchange had no power to pass a rule which imposed a fixed settlement price on outstanding tin contracts following the 1985 collapse of the International Tin Council, the Commercial Court was told in London yesterday.

Mr Sam Stamler QC said the LME had failed to get all the necessary information before taking such drastic action. He was opening the claim by Shearson Lehman Bros, a trading company owned by American Express and its subsidiary Shearson Lehman Metals, against the London Metal Exchange and two LME traders.

Shearson is claiming damages of approximately \$43m plus interest from MacLaine Watson and H. Rayner (Mining Lane) for non-acceptance of tin which Shearson was under contract to sell them.

Mr Stamler described the

two trading firms as "substantial".

"It is not an accident that Shearson dealt only with companies of this substance," he said.

Shearson maintains that the LME rule promulgated in March last year, and known as Rule M, is invalid. If the rule is found to be valid, however, Shearson claims it does not apply to all contracts, and also that it infringes articles 88 and 86 of the Treaty of Rome, part of the EC's competition rules.

Shearson alleges that between July and September 1985, on the instructions of the ITC, it entered into a series of "cash and carry" transactions with MacLaine and Rayner. It bought tin from the brokers, which agreed to buy back the tin at a price to be determined by the ITC, between October and December.

The contract price in each case was about \$9,000 a tonne.

Through non-acceptance of delivery, Shearson was left with metal worth about \$3,500 a tonne on the free market after the ITC collapse in October 1985 — a loss of about \$5,500 a tonne, said Mr Stamler.

The court's ruling, which like all other initial rulings in the tin cases is certain to be appealed, will affect all the claims by broker creditors of the ITC. It will determine whether the claims can be made on the pre-October 1985 contract prices of about \$9,000 a tonne or on the ring-out price fixed under Rule M of 15,250 a tonne.

Mr John Mummery, for the Attorney General, told the court that a claim for immunity would be made in respect of certain ITC documents referred to in the case on the grounds that their disclosure would not be in the public interest. The hearing continues today.

Metal Exchange trades 20,000 contracts a day

BY DAVID BLACKWELL

THE LONDON Metal Exchange traded an average of more than 20,000 futures and options contracts a day last week — the first time the figure has reached that level since the introduction of official trading in the base metals — copper, lead, zinc, aluminium and nickel — in the first week of clearing was about 491,500 tonnes.

The number of options traded rose to 3,105 on Friday — about 5 per cent of the total volume.

At Monday 14,780, Tuesday 22,210, Wednesday 20,180, Thursday 21,473 and Friday 24,168. This is about double the number traded in the corresponding week last year, although the figures are not strictly comparable because of the introduction of options.

Expressed in tonnes the average daily turnover in the base metals — copper, lead, zinc, aluminium and nickel — in the first week of clearing was about 491,500 tonnes.

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Rubber compensation fund studied

THE RUBBER Association of Singapore is considering setting up a fund to compensate for losses that foreign businessmen may incur on futures contracts if a local trader defaults, according to Mr Ling Lee Hua, the association's chairman, reports Reuters from Singapore.

The proposed fund is aimed at strengthening the Singapore Rubber Market and assuring foreign traders, consumers and producers that they will not lose money while trading in Singapore "except through their own foolishness or misjudgment of the market," he said the association's annual meeting.

Ling said any overseas trader, consumer or producer who fails to receive payment from a local trader can turn to the proposed fund for compensation.

The RAS will find ways to honour all legitimate claims in disputes, he said.

He added his association is working towards "a streamlined trading system in which all participants, anywhere in the world, will feel that their views are heard."

Industry officials said the proposed fund of between \$50m and \$80m is expected to be set up within about six months.

SA wool clip to stay low

BY JIM JONES IN JOHANNESBURG

SOUTH AFRICA'S 1987-88 season's wool clip is unlikely to be much greater than the 86.1m kilograms of 1986-87, according to the country's Wool Board.

The 1986-87 season which was just ended resulted in the lowest clip in 62 years, and wool farmers are estimated to have incurred losses of about R100m (\$31m). The 1986-87 season's clip was 82.8m kilograms.

Mr Richard M. de la Motte, executive of the Wool Board, blames the lower production

for the drop in export earnings to R117m from the previous season's R427m.

Higher mohair, mutton and lamb prices had combined with the higher grade fuel and leaves a particularly successful in promoting wool production, he said. But prolonged drought and the deterioration of grazing in small stock areas had been the principal causes of the lower clip.

Mr Pretorius warned that sheep numbers could decline further unless good rains fell

release next winter. CMA, a non-corrosive substitute for road salt manufactured by the brand name "Ice-B-Gone" of the brand name "Ice-B-Gone" using petroleum based natural gas as a feedstock.

Chevron has invested \$35,000 and the Corn Growers Association \$25,000 for a project to test maize as a potentially cleaner and less expensive feedstock to produce CMA.

Mr Marion Harman, chairman of the association's research committee, calculates that if the maize process is adopted commercially and CMA replaces just 10 per cent of the salt currently used to de-ice US roads, then 60m bushels of maize would find a new use each year.

The possibilities for maize seem endless, say the researchers. They are talking of biodegradable plastics, a blend of maize starch and synthetic polymers, for garbage bags, bottles and wrappers. "Zein," a by-product of wet milling to be made into a wool-like textile fibre, and maize starch for filtering fuel.

Growth in the export market is welcome, but US growers, having suffered their worst recession in 50 years, are not hoping to insure themselves against the cycles and disappointments they have endured in the past.

Widening horizons for US maize

BY NANCY DUNNE IN WASHINGTON

THE US Department of Agriculture has been churning out optimistic forecasts on American maize exports recently. Brisk sales, particularly to the Soviet Union and Japan, have pushed the department's export estimate up 5 per cent to 36.8m tonnes this year.

The outlook for next year is even better. World maize demand is expected to expand by 5 per cent, leading to a reduction in stocks.

This is good news at a time when unused US maize stocks total over 5bn bushels, more than 60 per cent of the 1986 crop. But farm groups are no longer looking to the feed export market alone for the answer to their surplus.

Increasingly, new uses for maize are being sought, researched and discovered.

Conferences like one this Thursday and Friday in St. Louis, Missouri, sponsored by the National Corn Growers Association and Funk Seeds International are spreading the word about new finds and their applications.

Standing as a model of what persistence and research can achieve is the expanded market for maize sweeteners, which now account for more than half the maize grown in the US. This once minor product now swallows up 530m bushels of maize each year.

The corn growers have

financed and lobbied around the country in the cause of maize substitutes. They have been particularly successful in promoting fuel ethanol (distilled from maize) as an environmentally clean, cost effective octane enhancer in gasoline. US ethanol producers now consume 500m bushels of maize each year, up from 4m bushels in 1979. The association's goal is to expand usage to 1bn bushels by 1990.

Ethanol use in diesel engines is to get a big push from the clean air standards imposed by the Environmental Protection Agency to go into effect for city buses by 1991 and for other vehicles by 1994. A breakthrough to be discussed at the conference is the development by Trans Energy Corporation in Phoenix of a precision spray injection system, said to allow diesel engines to start and operate more smoothly.

In boosting ethanol, the association is not shy about stressing its potential as an alternative to oil dependence and as a means of reducing "the transfer of US wealth to the Middle East."

The active Corn Growers Association in Illinois recently scored a coup when it convinced the state legislature to appropriate \$1m to construct an ethanol/carbon monoxide coal desulfurization demonstration reactor. The project will

employ a process using ethanol to remove most of the sulphur from coal, which leaves a higher grade fuel and several expensive marketable by-products without producing large quantities of hazardous wastes.

The scheme marries maize and coal, the state's two largest industries, both of which are economically depressed, and it offers to the maize producers a possible market for 275m bushels of maize in the form of 600m gallons of ethanol.

Ethanol may get a boost from another project, in Denver, where the Colorado Air Quality Control Commission is expected to issue rules to reduce the city's carbon monoxide levels. If the Commission follows the recommendation of its task force, then between November 1 and March 1, all gasoline sold locally will have to contain ethanol to elevate the oxygen levels. Arizona, Minnesota, New Mexico and California are all watching the Colorado programme to assess its contribution towards cleaner air.

Meanwhile, maize producers have their eyes on several new uses, like the new de-icer, calcium magnesium acetate (CMA) due for commercial

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Growth in the export market is welcome, but US growers, having suffered their worst recession in 50 years, are not hoping to insure themselves against the cycles and disappointments they have endured in the past.

John Cherrington is on holiday.

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Israel rejects 'unlawful' harvest

BY JUDITH MALTZ IN JERUSALEM

law, the chief rabbis at the time of the establishment of the state ruled that Jews could sell their lands for the year to non-Jews so that they could continue working them. The "haradim," representing a disproportionately powerful 6 per cent of the population, have always rejected this loophole, however, and have insisted that all their food be imported.

Bowing to this pressure Mr Yoram Bilivsky, director-general of the Ministry of Industry and Trade set off late last month for Washington, where he succeeded in reaching agreement with US agricultural officials that Israel would add 200,000 tonnes this year to its normal purchases. The price will be a subsidised \$80 per tonne, rather than the usual \$120

per tonne. Israel traditionally imports close to three-quarters of its 650,000 tonnes-a-year wheat requirement, all of it from the US.

On Sunday, the Israeli treasury informed the country's farmers that it would no longer be purchasing their wheat this year and that they would have to finance the cost of exporting their surpluses on their own. The difference between wheat import and export prices could cost the country upwards of \$10m this year.

The decision has understandably enraged the country's wheat growers, who are in the middle of harvesting a crop almost double last year's 140,000 tonnes.

"We are going to put up a struggle even if we have to bring this issue to the courts," said Mr David Dor, head of the Organisation of Field Crop Labourers. The Ministry of Industry and Trade has also come under sharp attack in recent days from leading political figures, religious and non-religious alike, for yielding to the ultra-orthodox.

be "The wheat problem," according to Mr Bilivsky, had never arisen in previous shmitta years because the Government had always been able to come to an agreement with the "haradim" whereby certain small mills would be designated solely for imported wheat. But since then, he claims, the small mills have closed down and the large mills fearing the loss of their "haradim" clientele now refuse to purchase and process locally grown wheat.

LONDON MARKETS

SUPPLY CONCERN because of the continuing strike at Cominco's Trail/Kimberley operation in British Columbia helped to lift zinc values on the London Metal Exchange again yesterday. Dealers said a fall in LME warehouse stocks last week, reflecting the removal of metal from warehouses to cover shortfalls caused by the month-old Peruvian force majeure, was another significant factor as the cash LME position reached \$54.50 a tonne, adding \$10.50 to Friday's \$44.00 advance. They said the Peruvian shortfalls, resulting from technical difficulties at the Cajamarquilla smelter, more than outweighed arrivals of metals from the Far East.

The aluminium market also continued its upward trend with the cash standard grade position adding another \$5.50 to \$219 a tonne. The new high-grade three-month position advanced by \$11 to \$157.50 a tonne after losing some of its early gains, which had reflected news that LME stocks of that grade totalled only 2,075 tonnes.

LME prices supplied by Amalgamated Metal Trading.

ALUMINIUM

99.7% Unofficial + or High/Low
purity (close p.m.) 5 per tonne

Cash	157.50	+11	159.50/58
3 months	159.50	+11	161.50/58

Official closing (am): Cash 157.50 (159.50); three months 161.50 (163.50); settlement 161.50. Final Kibb Close: 159.50. Turnover: 10,820 tonnes.

Cash 916.50 +5.5 922.00
3 months 922.00 +5.5 927.50
Official closing (am): Cash 916.50 (922.00); three months 927.50 (933.00); settlement 927.50. Final Kibb Close: 922.00. Turnover: 21,620 tonnes.

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INDICES

REUTERS
June 8 June 5 Mth ago Year ago
1608.5 1607.6 1593.9 1688.8
(Base: September 18 1931=100)

DOW JONES
June 8 June 5 Mth ago Year ago
285.19 285.19 285.19 285.19
(Base: December 31 1921=100)

MAIN PRICE CHANGES

June 9 - or Month
1987 - or Month

Aluminium	157.50	+11	159.50/58
Copper	916.50	+5.5	922.00
Lead	922.00	+5.5	927.50
Nickel	21.62	+1.1	22.73
Platinum	157.50	+11	159.50/58
Silver	157.50	+11	159.50/58
Tin	157.50	+11	159.50/58
Zinc	157.50	+11	159.50/58

COFFEE
June 8 June 5 Mth ago Year ago
1608.5 1607.6 1593.9 1688.8
(Base: September 18 1931=100)

DOW JONES
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285.19 285.19 285.19 285.19
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US MARKETS

EARLY COMMISSION house and local buying steered the precious metals reports Drexel Burnham Lambert.

Trade selling at the high prompted local profit-taking which took the markets back to the lows where short-covering pushed prices up slightly. However, towards the close of fresh commission house left prices at the lows. In addition, in silver and copper prices early buying included fund interest and stops were touched off as the markets fell back. Energy futures were quiet but supported by light trade interest. In crude oil light fund buying was a feature in a market dominated by the locals. Coffee futures rallied on light trade buying. Cocoa futures on technical buying reflecting the easier dollar. The grains were quiet with commercial selling apparent in all the markets including the soybean complex. Only maize futures managed noticeable gains on local and speculative buying. The meats were all weak as nervous traders took profits as cattle failed to make new contract highs. The feeling was that although fundamentals remain constructive, the meats are all overbought and this contributed to their weakness.

NEW YORK
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(Base: December 31 1921=100)

GOLD 100 Troy oz. \$/Troy oz.

June 8 June 5 Mth ago Year ago
1608.5 1607.6 1593.9 1688.8
(Base: September 18 1931=100)

DOW JONES
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(Base: December 31 1921=100)

CURRENCIES, MONEY & CAPITAL MARKETS

FOREIGN EXCHANGES

Dollar eases slightly

THE DOLLAR drifted slightly in relatively quiet trading yesterday. Most of Western Europe was closed by the weekend and those traders still in the market found little incentive to trade while the economic summit in Venice was in session.

However the softer tone did reflect a degree of unease in the market about the prospects of major nations achieving anything concrete at the summit. There were fears that West Germany's reluctance to cut its own interest rates and boost its economy in order to reduce the US trade deficit would lead to a further weakening of the dollar especially if further economic data pointed to weak growth.

This tended to highlight the release on Friday of US trade figures for April. These are expected to show a deficit of around \$14bn compared with a shortfall in March of \$13.8bn which is not very encouraging and a figure showing a bigger deficit than this could see the dollar coming under further downward pressure.

Comments by Mr James Baker, US Treasury Secretary, stressing that no fresh initiative was likely to come out of the Venice summit was offset to some extent by news that some of the trade sanctions imposed by the US on Japanese goods were to be lifted. This helped to pull the dollar back above \$130 after had touched a low of DM 1.7935 and it closed at DM 1.8045 still down from DM 1.8135 on Friday.

& IN NEW YORK

Spot	1.8030-1.8050	1.8030-1.8050
month	0.25-0.24 pm	0.24-0.23 pm
3 months	0.24-0.23 pm	0.23-0.22 pm
6 months	0.23-0.22 pm	0.22-0.21 pm

Forward premiums and discounts apply to the US dollar.

STERLING INDEX

	June 8	Previous
100 am	72.6	72.7
100 pm	72.6	72.7
100 am	72.6	72.7
100 pm	72.6	72.7
100 am	72.6	72.7
100 pm	72.6	72.7
100 am	72.6	72.7
100 pm	72.6	72.7

CURRENCY RATES

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

CURRENCY MOVEMENTS

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

OTHER CURRENCIES

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

MONEY MARKETS

UK election keeps rates steady

INTEREST RATES were mostly steady in the London money market. The different reaction to a Conservative win or otherwise at Thursday's general election was so great that many traders were unsure of what position to take. Most seemed confident of a Conservative win in which case the reluctance by discount houses to sell bills outright made sense but the authorities were also aware of their responsibilities to maintain some semblance of order; the latter would be hard to achieve if

UK clearing bank base lending rate 9 per cent since May 8

Ms Thatcher were not returned at Prime Minister.

However the idea of upward pressure on sterling, following a Conservative win, was countered by pressure on clearing bank base rates was the favourite in most people's minds, hence the reluctance to part with high yielding paper.

Consequently discount houses were obliged to bid up for secured money and the latter touched 9 1/4 per cent while overnight inter-bank money opened at 9 1/4 per cent on Friday.

It was also lower against the yen at Y143.40 from Y143.80 and SFR 15005 compared with SFR 15030. Elsewhere it slipped to PFR 6.0350 from PFR 6.0550. On Bank of England figures, the dollar's exchange rate index fell from 101.7 to 101.3.

STERLING—Trading range against the dollar in 1987 is 1.6885 to 1.7100. May average 1.6885. Exchange rate index 72.7, against 72.8 at the opening and last night's close. The six months ago figure was 68.8.

The pound was steady for most of the day and showed little overall change from Friday's closing levels. Dealers suggested that as long as the Conservative Party looked to be on course for a third term in office, the pound would trade within a narrow range. Sharp fluctuations were unlikely to occur unless the opposition parties eroded the Conservative lead.

UK producer prices for May showed a 0.2 per cent fall in input costs and a 0.3 per cent rise in output prices. These were much in line with expectations and served to underpin the pound although election nerves tended to stay the prime factor affecting sentiment.

EMS EUROPEAN CURRENCY UNIT RATES

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

POUND SPOT—FORWARD AGAINST THE POUND

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

DOLLAR SPOT—FORWARD AGAINST THE DOLLAR

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

EURO-CURRENCY INTEREST RATES

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

Long-term Eurodollar: Two years 8 1/4-8 1/2 per cent; three years 8 1/2-8 3/4 per cent; four years 8 3/4-9 1/4 per cent; five years 9 1/4-9 1/2 per cent nominal. Short-term rates are call for US Dollars and Japanese Yen; others, two days notice.

EXCHANGE CROSS RATES

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

FT LONDON INTERBANK FUNDING

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

MONEY RATES

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

LONDON MONEY RATES

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

Treasury Bills (sell): one-month 8 1/4 per cent; three-months 8 1/2 per cent; Bank Bills (sell): one-month 8 1/4 per cent; three-months 8 1/2 per cent; Treasury Bills (buy): one-month 8 1/4 per cent; three-months 8 1/2 per cent.

In New York the US Federal Reserve Bank entered the securities market to arrange \$1.5bn of customer repurchase agreements. At the time Fed funds were trading at 9 1/4 per cent against 6.7 per cent on Friday.

FINANCIAL FUTURES

Prices little changed

TRADING WAS extremely dull and featureless in the London International Financial Futures Exchange yesterday. Sterling based instruments were held in a narrow range ahead of Thursday's general election while US bond and Euro-dollar contracts were ignored, awaiting any outcome of the Venice summit.

Long gilt futures finished slightly up on the day, moving from 125.03 to 125.05, but held in check by sterling's indifferent performance on the crosses. Dealers were divided in their views as to what would happen on Friday assuming the Conservatives were returned to power. Some suggested that the reaction would be muted unless the majority was slim while others suggested that a victory would herald a rapid influx from overseas into sterling instruments. All were agreed that any other result would prompt a sharp downward reaction.

The September gilt price opened at 125.03 compared with Friday's close of 125.05 and it traded between a low of 125.31 and a high of 126.13 before closing at 126.07.

Three-month sterling deposits acted in much the same way, deriving little inspiration from a static cash market. The September price was confined to a five tick range before closing at 81.30, the same as the opening.

US Treasury bonds and three-month Euro-dollars lost ground during the morning but recovered a little during the afternoon as the dollar improved. The better tone was in some way due to news of a partial lifting of US trade sanctions on Japanese goods.

LIFE LONG BOND FUTURES OPTIONS

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

LIFE LONG BOND FUTURES OPTIONS

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

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Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

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Currency	Rate	Special	European
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U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
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U.S. Dollar	1.8045	1.8045	1.8045
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LIFE LONG BOND FUTURES OPTIONS

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U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

LIFE LONG BOND FUTURES OPTIONS

Currency	Rate	Special	European
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045
U.S. Dollar	1.8045	1.8045	1.8045

LIFE LONG BOND FUTURES OPTIONS

IFFE—STERLING £25,000 5 per £				
	Close	High	Low	Prev
June	1.6388	1.6400	1.6382	1.6302
Sept.	1.6332	1.6347	1.6307	1.6245
Oct.	1.6298	—	—	1.6206
Estimated volume 216 (22)				
revises day's open int 706 (686)				

WORLD MARKETS

FT-ACTUARIES WORLD INDICES

Jointly compiled by the Financial Times, Goldman, Sachs & Co., and Wood Mackenzie & Co. Ltd., in conjunction with the Institute of Actuaries and the Faculty of Actuaries

NATIONAL AND REGIONAL MARKETS	MONDAY JUNE 8 1987					FRIDAY JUNE 5 1987					DOLLAR INDEX		
	US Dollar Index	Day's Change %	Pound Sterling Index	Local Currency Index	Gross Div. Yield	US Dollar Index	Pound Sterling Index	Local Currency Index	1987 High	1987 Low	Year to Date (Approx)		
Figures in parentheses show number of stocks per grouping													
Australia (16)	133.93	+0.0	120.61	123.97	3.09	133.94	121.20	124.03	140.95	99.92	90.20		
Austria (16)	87.74	+0.0	79.36	82.51	2.27	87.70	79.72	82.51	101.62	85.94	84.29		
Belgium (47)	116.60	+0.7	105.47	107.54	4.40	115.82	105.28	107.54	123.82	96.19	76.94		
Canada (1259)	126.61	+0.7	114.52	114.52	2.42	126.42	114.52	114.52	124.00	97.45	97.45		
Denmark (39)	118.57	+0.5	107.21	109.45	2.51	117.93	107.20	109.47	124.10	98.18	99.17		
France (122)	109.41	+0.5	98.97	103.57	2.65	108.87	98.96	103.57	121.82	98.39	78.89		
West Germany (90)	91.21	+0.5	82.51	85.57	2.17	90.76	82.50	85.57	100.33	84.00	82.61		
Hong Kong (45)	116.74	+0.7	102.80	102.80	2.18	116.74	102.80	102.80	124.00	96.89	97.45		
Ireland (14)	127.62	+0.8	115.44	121.30	3.57	127.69	116.96	121.30	131.86	99.50	82.01		
Italy (76)	100.21	+1.0	90.46	97.81	1.85	99.18	90.19	97.26	112.11	94.76	80.31		
Japan (458)	135.82	+1.0	104.95	142.34	0.49	134.27	104.29	142.34	161.38	100.00	77.37		
Malaysia (36)	171.62	+0.4	171.62	161.69	2.73	171.62	161.69	161.69	172.53	94.00	94.00		
Netherlands (16)	209.34	+2.0	189.36	294.23	0.75	205.25	186.57	288.02	209.34	99.72	43.46		
New Zealand (38)	116.49	+0.6	105.37	108.06	4.08	115.80	105.27	107.98	120.14	99.65	88.82		
New Zealand (27)	95.94	+0.9	86.43	90.53	3.65	95.94	86.43	90.53	100.00	99.65	88.82		
Norway (20)	140.00	+0.0	126.49	126.49	1.97	139.17	126.51	126.49	140.00	100.00	97.16		
Singapore (27)	144.47	+0.0	130.68	140.58	1.73	144.43	130.51	140.55	144.47	99.29	71.42		
South Africa (61)	158.92	+0.7	143.75	117.79	3.45	157.77	143.41	116.93	186.10	100.00	75.24		
Spain (42)	113.72	-0.3	101.96	107.13	3.78	112.80	102.54	108.02	121.31	100.00	92.85		
Sweden (13)	113.12	+0.5	102.32	105.33	2.18	112.59	102.55	105.34	124.68	90.85	89.23		
Switzerland (51)	93.58	+0.2	84.65	87.08	1.97	93.42	84.92	87.05	104.06	92.53	81.77		
United Kingdom (337)	145.54	+0.4	131.65	131.65	3.20	144.91	131.72	131.72	148.86	96.85	97.22		
USA (986)	121.63	+1.1	109.94	121.93	2.99	121.62	109.92	121.93	124.00	100.00	100.37		
Europe (930)	118.58	+0.5	107.36	109.86	2.49	118.11	107.32	109.86	121.61	99.78	88.03		
Pacific Basin (687)	136.65	+0.7	119.65	121.93	2.97	136.55	119.65	121.93	138.00	100.00	97.37		
Europe-Pacific (1617)	136.61	+0.8	126.29	127.77	1.39	136.56	125.95	127.24	143.22	100.00	81.70		
North America (725)	121.80	+1.0	110.18	121.64	2.94	120.59	109.62	120.43	124.60	100.00	100.24		
World Ex. US (1822)	139.40	+0.7	126.10	130.16	1.45	138.78	125.38	130.05	143.05	100.00	82.17		
World Ex. UK (2860)	132.41	+0.7	118.14	118.14	1.86	131.85	118.13	118.13	135.93	100.00	82.17		
World Ex. SA. (2356)	132.40	+0.9	119.62	125.55	1.98	131.11	119.18	124.75	135.89	100.00	89.38		
World Ex.-Japan (9317)	121.28	+0.8	109.71	117.65	2.93	120.33	109.38	116.93	121.81	100.00	95.00		
The World Index (2497)	132.41	+0.9	119.77	125.52	2.00	131.29	119.34	124.72	134.11	100.00	89.29		

Base values: Dec 31, 1986 = 100
Source: The Financial Times, 6

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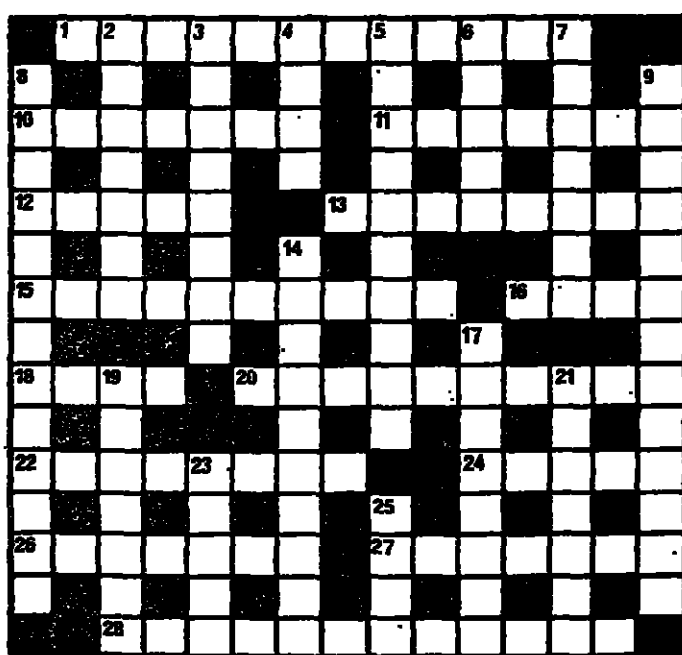
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FT CROSSWORD PUZZLE No. 6,347**CINEPHILE**

- ACROSS**

 - 1 Question of mating between black and white (5,7)
 - 4 Former penny in a new Lloyd's Bank (& 4)
 - 11 Be entitled to be severed? (7)
 - 12 Sound top of horn in ivory (5)
 - 13 Done in my turn, I was loved by the moon (8)
 - 14 Apostle's girl on holy island line (10)
 - 16 Skip from room, Italian style (6)
 - 19 Observe particularly on your head (4)
 - 20 Overall is trouble, possibly, when I come in (6,4)
 - 22 Little boy feels wrong outside (8)
 - 24 Reflector taken by gentleman in France (5)
 - 25 First prayer first—torn it body? (7)
 - 27 Pinch a stitch with nothing in (7)
 - 28 Committed purpose of salver? (4-5)

DOWN

 - 2 Skin round human beings is ugly? (7)
 - 3 Cut back before strike—great success? (6)
 - 4 French country is profitable (4)
 - 5 Foreign currency, one used (> 4)
 - 6 Having a healthy appetite? (5)
 - 7 Mix arms for revolutionary creed? (7)
 - 8 Crossword compiler's calculation of pi could be hell (10,3)
 - 9 Check what's said about getting job back (12)
 - 14 Giving liberal views, mug can't it wage (10)
 - 17 Support burst time in theatre? (8)
 - 19 Tactful sort of body? (7)
 - 21 What makes U turn in grain? (7)
 - 23 Clean in discouragement (5)
 - 25 Incentive for branch line (4)

Solution to Puzzle No. 6,346

H A N D R I A A W A S C O T
 A A U C R E
 B A T O N A T A T I O N
 U S S A G E N T W I T E
 A C R E C M R E
 A A S S O C I A T I O N
 E P A A N S A T
 S T R I D U L A T E
 S E V L R H R S
 S A N C H O P A T E R N A L
 E C C A T T I
 I N D I A N S T A I N G
 S E T O T R M
 S E T R O A R E

BASE LENDING RATES

ASB Bank	9	● Charterhouse Bank	9	Nat. Bk. of Hawaii	9
Aspen & Company	9	Citibank NA	9	NatWestminster	9
Allied Amtek Bk. Ltd.	9	City Merchants Bank	9	Northern Bank Ltd	9
Allied Dunbar & Co	9	Clydebank Bank	9	PNB Bank Ltd	9
Allied Irish Bank	9	Comme. Bk. N. East	9	Pharos Inst. (UK)	10
American Exp. Bk.	9	Consolidated Cred.	9	Practical Trust Ltd	10
Amex Bank	9	Co-operative Bank	9	R. Baxend & Son	9
BankAmerica	9	Com. Federal Bk.	9	Rushmore F. Finance	9
ANZ Banking Group	9	Dominic Lamerie	9	Royal Bk. of Scotland	9
Auckland City Corp.	9	Equat'v'l. Trst'g Co p/bc	9	Trust Bank	9
Authority & Co Ltd.	9	Exeter Trust Ltd.	9	Smith & Welford Secs	9
Banco de Bilbao	9	Financial & Gen. Sec.	9	Stanford Chartered	9
Bank Republic	9	First Nat. Fin. Corp.	10	Trustee Savings Bk.	9
Bank Leumi (UK)	9	First Nat. Sec. Ltd.	10	UOI Mortgage Corp.	71.1
Bank Credit & Comm.	9	● Hibernia Finance & Co	9	United Bk. of Hawaii	9
Bank of Cyprus	9	Robert Fraser & P'srs.	10	United Mercantile Bank	9
Bank of Ireland	9	Grindlays	9	Unity Trust Bank	9
Bank of Montreal	9	Grindlays Bank	9	Wentworth Bank Corp.	9
Bank of Scotland	9	● Guinness Malton	9	Whitbread Lloyds	9
Banking Belg. Ltd.	9	HFC Trust & Savings	9	Yorkshire Bank	9
Barclays Bank	9	● Harburo Bank	9		
Bearshank Trst Ltd	9	Hertford & Co. Trst.	9	● Members of the Accept.	
Beverlyfield Trst Ltd	10	● Hill Samad	9	Houses Committee,	
Bank of Mid East	9	C. Hume & Co.	9	Committee, Savings	6.6
Brit. Bk. of Alg.	9	● Humphreys & Shagh	9	Top Trst—£2,500, at 3 m	
● Brown Shipley	9	Lloyds Bank	9	weekly 7.97%, at 6 m	
Business Mgmt Trst.	9	Morgan & Sons Ltd	9	£10,000, 12 m	
C. J. Baker (UK)	9	● Morgan Grenfell	9	£2,000, 12 m	
Canada Permanent	9	● Munsga Greenf.	9	£2,000 deposits £1,000 and	
Cancer Ltd.	9	● Nat Credit Corp. Ltd.	9	45% gross, £3,000 base r	
				weekly 5.9%	
				Mortgage 11.25%	



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OFFSHORE AND OVERSEAS

LONDON SHARE SERVICE

FUNDUS Contd					FOREIGN BONDS & RAILS				
Index-Linked	Price	Yld.	Int.	Red.	High	Low	Stock	Price	Yld.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(01)	130.3	1.11	2.17		45	46	Deck Inc. 12-1	42.00	1.50
(02)	130.3	1.11	2.17		47	48	Deck Inc. 12-1	42.00	1.50
(03)	130.3	1.11	2.17		49	50	Deck Inc. 12-1	42.00	1.50
(04)	130.3	1.11	2.17		51	52	Deck Inc. 12-1	42.00	1.50
(05)	130.3	1.11	2.17		53	54	Deck Inc. 12-1	42.00	1.50
(06)	130.3	1.11	2.17		55	56	Deck Inc. 12-1	42.00	1.50
(07)	130.3	1.11	2.17		57	58	Deck Inc. 12-1	42.00	1.50
(08)	130.3	1.11	2.17		59	60	Deck Inc. 12-1	42.00	1.50
(09)	130.3	1.11	2.17		61	62	Deck Inc. 12-1	42.00	1.50
(10)	130.3	1.11	2.17		63	64	Deck Inc. 12-1	42.00	1.50
(11)	130.3	1.11	2.17		65	66	Deck Inc. 12-1	42.00	1.50
(12)	130.3	1.11	2.17		67	68	Deck Inc. 12-1	42.00	1.50
(13)	130.3	1.11	2.17		69	70	Deck Inc. 12-1	42.00	1.50
(14)	130.3	1.11	2.17		71	72	Deck Inc. 12-1	42.00	1.50
(15)	130.3	1.11	2.17		73	74	Deck Inc. 12-1	42.00	1.50
(16)	130.3	1.11	2.17		75	76	Deck Inc. 12-1	42.00	1.50
(17)	130.3	1.11	2.17		77	78	Deck Inc. 12-1	42.00	1.50
(18)	130.3	1.11	2.17		79	80	Deck Inc. 12-1	42.00	1.50
(19)	130.3	1.11	2.17		81	82	Deck Inc. 12-1	42.00	1.50
(20)	130.3	1.11	2.17		83	84	Deck Inc. 12-1	42.00	1.50
(21)	130.3	1.11	2.17		85	86	Deck Inc. 12-1	42.00	1.50
(22)	130.3	1.11	2.17		87	88	Deck Inc. 12-1	42.00	1.50
(23)	130.3	1.11	2.17		89	90	Deck Inc. 12-1	42.00	1.50
(24)	130.3	1.11	2.17		91	92	Deck Inc. 12-1	42.00	1.50
(25)	130.3	1.11	2.17		93	94	Deck Inc. 12-1	42.00	1.50
(26)	130.3	1.11	2.17		95	96	Deck Inc. 12-1	42.00	1.50
(27)	130.3	1.11	2.17		97	98	Deck Inc. 12-1	42.00	1.50
(28)	130.3	1.11	2.17		99	100	Deck Inc. 12-1	42.00	1.50
(29)	130.3	1.11	2.17		101	102	Deck Inc. 12-1	42.00	1.50
(30)	130.3	1.11	2.17		103	104	Deck Inc. 12-1	42.00	1.50
(31)	130.3	1.11	2.17		105	106	Deck Inc. 12-1	42.00	1.50
(32)	130.3	1.11	2.17		107	108	Deck Inc. 12-1	42.00	1.50
(33)	130.3	1.11	2.17		109	110	Deck Inc. 12-1	42.00	1.50
(34)	130.3	1.11	2.17		111	112	Deck Inc. 12-1	42.00	1.50
(35)	130.3	1.11	2.17		113	114	Deck Inc. 12-1	42.00	1.50
(36)	130.3	1.11	2.17		115	116	Deck Inc. 12-1	42.00	1.50
(37)	130.3	1.11	2.17		117	118	Deck Inc. 12-1	42.00	1.50
(38)	130.3	1.11	2.17		119	120	Deck Inc. 12-1	42.00	1.50
(39)	130.3	1.11	2.17		121	122	Deck Inc. 12-1	42.00	1.50
(40)	130.3	1.11	2.17		123	124	Deck Inc. 12-1	42.00	1.50
(41)	130.3	1.11	2.17		125	126	Deck Inc. 12-1	42.00	1.50
(42)	130.3	1.11	2.17		127	128	Deck Inc. 12-1	42.00	1.50
(43)	130.3	1.11	2.17		129	130	Deck Inc. 12-1	42.00	1.50
(44)	130.3	1.11	2.17		131	132	Deck Inc. 12-1	42.00	1.50
(45)	130.3	1.11	2.17		133	134	Deck Inc. 12-1	42.00	1.50
(46)	130.3	1.11	2.17		135	136	Deck Inc. 12-1	42.00	1.50
(47)	130.3	1.11	2.17		137	138	Deck Inc. 12-1	42.00	1.50
(48)	130.3	1.11	2.17		139	140	Deck Inc. 12-1	42.00	1.50
(49)	130.3	1.11	2.17		141	142	Deck Inc. 12-1	42.00	1.50
(50)	130.3	1.11	2.17		143	144	Deck Inc. 12-1	42.00	1.50
(51)	130.3	1.11	2.17		145	146	Deck Inc. 12-1	42.00	1.50
(52)	130.3	1.11	2.17		147	148	Deck Inc. 12-1	42.00	1.50
(53)	130.3	1.11	2.17		149	150	Deck Inc. 12-1	42.00	1.50
(54)	130.3	1.11	2.17		151	152	Deck Inc. 12-1	42.00	1.50
(55)	130.3	1.11	2.17		153	154	Deck Inc. 12-1	42.00	1.50
(56)	130.3	1.11	2.17		155	156	Deck Inc. 12-1	42.00	1.50
(57)	130.3	1.11	2.17		157	158	Deck Inc. 12-1	42.00	1.50
(58)	130.3	1.11	2.17		159	160	Deck Inc. 12-1	42.00	1.50
(59)	130.3	1.11	2.17		161	162	Deck Inc. 12-1	42.00	1.50
(60)	130.3	1.11	2.17		163	164	Deck Inc. 12-1	42.00	1.50
(61)	130.3	1.11	2.17		165	166	Deck Inc. 12-1	42.00	1.50
(62)	130.3	1.11	2.17		167	168	Deck Inc. 12-1	42.00	1.50
(63)	130.3	1.11	2.17		169	170	Deck Inc. 12-1	42.00	1.50
(64)	130.3	1.11	2.17		171	172	Deck Inc. 12-1	42.00	1.50
(65)	130.3	1.11	2.17		173	174	Deck Inc. 12-1	42.00	1.50
(66)	130.3	1.11	2.17		175	176	Deck Inc. 12-1	42.00	1.50
(67)	130.3	1.11	2.17		177	178	Deck Inc. 12-1	42.00	1.50
(68)	130.3	1.11	2.17		179	180	Deck Inc. 12-1	42.00	1.50
(69)	130.3	1.11	2.17		181	182	Deck Inc. 12-1	42.00	1.50
(70)	130.3	1.11	2.17		183	184	Deck Inc. 12-1	42.00	1.50
(71)	130.3	1.11	2.17		185	186	Deck Inc. 12-1	42.00	1.50
(72)	130.3	1.11	2.17		187	188	Deck Inc. 12-1	42.00	1.50
(73)	130.3	1.11	2.17		189	190	Deck Inc. 12-1	42.00	1.50
(74)	130.3	1.11	2.17		191	192	Deck Inc. 12-1	42.00	1.50
(75)	130.3	1.11	2.17		193	194	Deck Inc. 12-1	42.00	1.50
(76)	130.3	1.11	2.17		195	196	Deck Inc. 12-1	42.00	1.50
(77)	130.3	1.11	2.17		197	198	Deck Inc. 12-1	42.00	1.50
(78)	130.3	1.11	2.17		199	200	Deck Inc. 12-1	42.00	1.50
(79)	130.3	1.11	2.17		201	202	Deck Inc. 12-1	42.00	1.50
(80)	130.3	1.11	2.17		203	204	Deck Inc. 12-1	42.00	1.50
(81)	130.3	1.11	2.17		205	206	Deck Inc. 12-1	42.00	1.50
(82)	130.3	1.11	2.17		207	208	Deck Inc. 12-1	42.00	1.50
(83)	130.3	1.11	2.17		209	210	Deck Inc. 12-1	42.00	1.50
(84)	130.3	1.11	2.17		211	212	Deck Inc. 12-1	42.00	1.50
(85)	130.3	1.11	2.17		213	214	Deck Inc. 12-1	42.00	1.50
(86)	130.3	1.11	2.17		215	216	Deck Inc. 12-1	42.00	1.50
(87)	130.3	1.11	2.17		217	218	Deck Inc. 12-1	42.00	1.50
(88)	130.3	1.11	2.17		219	220	Deck Inc. 12-1	42.00	1.50
(89)	130.3	1.11	2.17		221	222	Deck Inc. 12-1	42.00	1.50
(90)	130.3	1.11	2.17		223	224	Deck Inc. 12-1	42.00	1.50
(91)	130.3	1.11	2.17		225	226	Deck Inc. 12-1	42.00	1.50
(92)	130.3	1.11	2.17		227	228	Deck Inc. 12-1	42.00	1.50
(93)	130.3	1.11	2.17		229	230	Deck Inc. 12-1	42.00	1.50
(94)	130.3	1.11	2.17		231	232	Deck Inc. 12-1	42.00	1.50
(95)	130.3	1.11	2.17		233	234	Deck Inc. 12-1	42.00	1.50
(96)	130.3	1.11	2.17		235	236	Deck Inc. 12-1	42.00	1.50
(97)	130.3	1.11	2.17		237	238	Deck Inc. 12-1	42.00	1.50
(98)	130.3	1.11	2.17		239	240	Deck Inc. 12-1	42.00	1.50
(99)	130.3	1.11	2.17		241	242	Deck Inc. 12-1	42.00	1.50
(100)	130.3	1.11	2.17		243	244	Deck Inc. 12-1	42.00	1.50
(101)	130.3	1.11	2.17		245	246	Deck Inc. 12-1	42.00	1.50
(102)	130.3	1.11	2.17		247	248	Deck Inc. 12-1	42.00	1.50
(103)	130.3	1.11	2.17		249	250	Deck Inc. 12-1	42.00	1.50
(104)	130.3	1.11	2.17		251	252	Deck Inc. 12-1	42.00	1.50
(105)	130.3	1.11	2.17		253	254	Deck Inc. 12-1	42.00	1.50
(106)	130.3	1.11	2.17		255	256	Deck Inc. 12-1	42.00	1.50
(107)	130.3	1.11	2.17		257	258	Deck Inc. 12-1	42.00	1.50
(108)	130.3	1.11	2.17		259	260	Deck Inc. 12-1	42.00	1.50
(109)	130.3	1.11	2.17		261	262	Deck Inc. 12-1	42.00	1.50
(110)	130.3	1.11	2.17		263	264	Deck Inc. 12-1	42.00	1.50
(111)	130.3	1.11	2.17		265	266	Deck Inc. 12-1	42.00	1.50
(112)	130.3	1.11	2.17		267	268	Deck Inc. 12-1	42.00	1.50
(113)	130.3	1.11	2.17		269	270	Deck Inc. 12-1	42.00	1.50
(114)	130.3	1.11	2.17		271	272	Deck Inc. 12-1	42.00	1.50
(115)	130.3	1.11	2.17		273	274	Deck Inc. 12-1	42.00	1.50
(116)	130.3	1.11	2.17		275	276	Deck Inc. 12-1	42.00	1.50
(117)	130.3	1.11	2.17		277	278	Deck Inc. 12-1	42.00	1.50
(118)	130.3	1.11	2.17		279	280	Deck Inc. 12-1	42.00	1.50
(119)	130.3	1.11	2.17		281	282	Deck Inc. 12-1	42.00	1.50
(120)	130.3	1.11	2.17		283	284	Deck Inc. 12-1	42.00	1.50
(121)	130.3	1.11	2.17		285	286	Deck Inc. 12-1	42.00	1.50
(122)	130.3	1.11	2.17		287	288	Deck Inc. 12-1	42.00	1.50
(123)	130.3	1.11	2.17		289	290	Deck Inc. 12-1	42.00	1.50
(124)	130.3	1.11	2.17		291	292	Deck Inc. 12-1	42.00	1.50
(125)	130.3	1.11	2.17		293	294	Deck Inc. 12-1	42.00	1.50
(126)	130.3	1.11	2.17		295	296	Deck Inc. 12-1	42.00	1.50
(127)	130.3	1.11	2.17		297	298	Deck Inc. 12-1	42.00	1.50
(128)	130.3	1.11	2.17		299	300	Deck Inc. 12-1	42.00	1.50
(129)	130.3	1.11	2.17		301	302	Deck Inc. 12-1	42.00	1.50
(130)	130.3	1.11	2.17		303	304	Deck Inc. 12-1	42.00	1.50
(131)	130.3	1.11	2.17		305	306	Deck Inc. 12-1	42.00	1.50
(132)	130.3	1.11	2.17		307	308	Deck Inc. 12-1	42.00	1.50
(133)	130.3	1.11	2.17		309	310	Deck Inc. 12-1	42.00	1.50
(134)	130.3	1.11	2.17		311	312	Deck Inc. 12-1	42.00	1.50
(135)	130.3								

45

MINES—Continued

**A selection of Options traded is given on the
London Stock Exchange Report Page.**

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NEW YORK STOCK EXCHANGE COMPOSITE CLOSING PRICES

[illegible]

Continued on Page 49

NYSE COMPOSITE CLOSING PRICES

AMEX COMPOSITE CLOSING PRICES

12 Month				P/ S%
High Low Start End	Rate Vol	Sale	Exp	

[illegible]

Stock	Div	P/E	Stk 100s	High	Low	Close
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[illegible]

OVER-THE-COUNTER

Nasdaq national market, closing prices

[illegible]

Sales figures are unofficial. Yearly highs and lows reflect the previous 52 weeks plus the current week, but not the latest trading day. Where a split or stock dividend amounting to 25 per cent or more has been paid, the year's high-low range and dividend are shown for the new stock only. Unless otherwise noted, rates of dividends are annual disbursements based on

a-dividend also end(re)-*b*-annual rate of dividend plus stock dividend-*c*-liquidating dividend, called-called-*d*-new yearly low-*e*-dividend declared or paid in preceding 12 months-*f*-dividend in Canadian funds, subject to 10% withholding tax-*g*-dividend payment date-*h*-set-up or set-off-*i*-dividend paid this year, omitted, deferred, or no action taken at latest dividend meeting-*k*-dividend declared or paid in this year, an accumulative issue with dividends in arrears-*n*-new issue in the past 52 weeks-*The high-low range begins with the start of the current trading session and ends with the last day's earnings roll.* -*r*-dividend declared or paid in preceding 12 months, plus stock dividend-*s*-stock split. Dividends begin with date of split. See sales-*t*-dividend paid in stock in preceding 12 months-*w*-estimated cash value on ex-dividend or distribute date-*x*-distribution by liquidation, followed by bankruptcy or receivership or being reorganised under the Bankruptcy Act, or securities assumed by such companies-*y*-distributed-*z*-when issued, we-with warrants-*xx*-ex-dividend or ex-rights-*xxx*-no distribution, no-without warrants-*yy*-ex-dividend and sales full, yd-yield, z-sales in full.

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Continued on Page 47

FINANCIAL TIMES

WORLD STOCK MARKETS

AMERICA

Strong advance built on comfort of stable dollar

WALL STREET

STOCK PRICES advanced across a broad front on Wall Street after a choppy start, as traders took comfort from stabilising bond and foreign exchange markets, writes Anatole Kaletsky in New York.

President Reagan's announcement of the partial lifting of trade sanctions against Japan helped stabilise the dollar after its sharp pre-announcement drop in Far East and European trading and helped the bond market retrace most of its early morning one-point decline.

By late afternoon in New York, the Treasury's benchmark long bond was down only 1/4 at \$100 1/4, having fallen as much as a full point in Europe earlier in the day.

The bond market's composure encouraged bargain hunting on the equity pitches and by the close the Dow Jones industrial average was up 25.48 at 2,351.84. By contrast, during the distinctly bearish first half hour of trading, the Dow had been down more than 15 points. The transportation index was up 14.78 to 1,001.42, while the Standard & Poors 500 was up 3.27 to 286.72.

Trading volume remained relatively subdued, continuing the pattern set in the last two listless weeks on Wall Street, with advancing stocks leading declines by two to one.

Most of the blue-chip industrials joined in the widespread rally, with General Motors 3 1/4 higher at \$89 1/4 and Ford up 1/2 at \$94 1/4. Merck gained \$2 to \$162 1/2 and Exxon rose \$4 to \$87 1/2.

Technology stocks did particularly well, with IBM up \$1 1/4 to \$161 1/4, Digital Equipment \$2 1/4 higher at \$184 1/4 and Unisys up \$1 1/4 to \$120. AT&T rose \$1 1/4 to \$28 1/4 and was among the day's most active issues.

Bank stocks figured prominently among the strongest performers, extending a pattern which began last month with Citicorp's announcement of large loss reserves for its Third World loans. More recently, buying has been motivated by mounting speculation about a change in the regulatory climate in the wake of Mr Paul Volcker's replacement by Mr Alan Greenspan as chairman of the Federal Reserve Board.

A story in the weekend papers, suggesting that the authorities might now favour the creation of a handful of "super-banks", large enough to compete with the Japanese financial giants, was good for \$1 1/4 on Citicorp's stock price, which advanced to \$59 1/4.

JP Morgan was boosted \$2 1/4 to \$47 1/4 and Chase Manhattan rose \$1 1/4 to \$40 1/4. Even BankAmerica, which had missed out on the recent re-rating of bank stocks, jumped \$1 1/4 to \$11 1/4, partly perhaps because of the renewed hopes that the struggling banking colossus might again become a takeover target.

There was no major news on the bid and restructuring front. The two biggest bid targets, showed little change, with Harcourt Brace Jovan-

ovich drifting down 3/4 to \$57 1/4 after news that Mr Robert Maxwell, the British printing magnate, was expanding his legal attempts to block the Florida-based publishing company's recapitalisation. Meanwhile Allegis declined 5/4 to \$89 1/4, while Burlington Industries fell 5/4 to \$75 1/4.

However, there were some more dramatic bid and deal developments among the smaller issues.

Research-Cottrell, a civil engineering and design contractor, was one of the morning's most active stocks, jumping \$3 1/4 to \$44, with 1.5m shares traded. The company agreed to be acquired for \$43 a share in a leveraged buyout led by Odyssey Partners.

Washington Mutual Savings Bank rose \$3 1/4 to \$36 1/4 on rumours that the company might be a bid target, with a price mentioned of \$42 a share.

Bond market trading remained predominantly bearish, dominated by currency concerns, although the long bond managed to retrace most of its early morning losses on the European markets.

Dealers were pleased by conciliatory stance struck by President Reagan in the semiconductor trade war, and took further encouragement from the Japanese government commitment to maintain low short-term interest rates reported from Venice.

However, the general assessment of the Venice summit remained sceptical, with expectations of a further dollar decline in the near future apparently once again gaining ground.

The long bond was down 3/4 to 100 1/4 by 4.30. Its yield was 8.67 per cent. Fed Funds traded throughout the day at around 9 1/4 per cent, unchanged from their opening level.

Lex, Page 26

CANADA

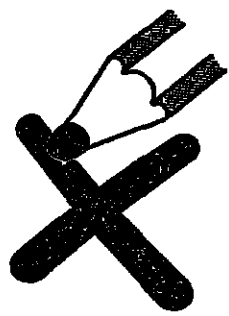
INVESTORS kept to the sidelines in Toronto leaving share prices little changed in slow and uneventful trade. Golds were slightly firmer than the market trend.

Among the most actively traded shares, mining stock Cominco added 3/4 to C\$18 1/4 and Unicom Canada dipped 3/4 to C\$8 1/4. In golds, Glamis Gold picked up C\$1 to C\$30 and International Corona rose C\$4 to C\$40 1/4. Campbell Red Lake, however, slipped C\$1 to C\$38 and Dome Mines was C\$4 easier at C\$19 1/4.

Noranda said it would not resume mining operations at the fire-damaged Murdochville mine at the present level of copper prices. It rose C\$3 to C\$29 1/4. Oils and industrials were slightly easier. Montreal prices rose marginally and Vancouver was slightly higher.

The Vancouver exchange said it has listed the common stock of Greentree Energy.

London confident as election week starts



THE UK securities markets had a confident start to a potentially dramatic week which opens with the Venice summit and ends with the results of the British general election.

Share prices staged a successful rally from initial nervousness over the latest opinion polls, while government bonds moved ahead in late trading.

The FT-SE 100 index slid by 14 points after a poll by the Mori organisation had run counter to the message from other polls over the weekend, which were mainly favourable to the Conservatives. However, it recovered to close 0.4 lower at 2,228.4, while the FT Ordinary index was down 2.7 at 1,777.2.

There was little selling as the big institutions have now squared their

position before election day on Thursday and only professional traders are left in the market.

Investor's attention is focused mainly on the prospects for re-election of the Thatcher Government. The Venice summit, in contrast, is seen as "an anti-climax, with no substantive measures", according to the latest strategy analysis from Chase Manhattan Securities.

International stocks had a firm session even when domestic issues drifted lower in early trading. Glaxo again saw support as investors continued to take the view that foreign buyers would return to the pharmaceutical sector after the election. It climbed 3/4 to C17 1/4.

BAT Industries rose 7p to 59 1/4p, Jaguar 3p to 53 1/4p, Unilever 1/4 to 53 1/4p and Fisons 1 1/2p to 37 1/2p.

Industrials were helped at the end of the day by a rally in bank shares after a major clearing bank denied suggestions that the banks planned write-downs of their Third World debts.

Bonds, which are widely expected to respond strongly to the outcome of the election, had a thin session until firmness in sterling encouraged buyers in the final hour. They finished with net gains of about 1/4 of a point. Details, Page 46

EUROPE

Speculative buying lifts wary Milan

TRADING in continental Europe yesterday was limited to the Italian and Spanish stock markets. The remainder were closed for the Whit-Sunday holiday.

Milan rose slightly on a spate of speculative buying in otherwise thin trade as investors remained wary of buying before next Sunday's parliamentary elections.

Industrial and insurance issues headed the field. Generali added L175 to close at L132,700 and Ras was up L390 at L63,680. In industrials, Fiat common shares added L81 to L12,830 and Montedison edged L10 higher to L2,550. Olivetti also featured with a L280 advance to L13,100.

Cement companies marched further ahead. Italcementi, part of the

Presenti group, picked up L1,000 at L89,000 and Italmobiliare rose L1,750 to L129,700.

Banks were mixed as Mediobanca rose L1,350 to L272,350, but Credito Italiano fell L48 to L2,055.

Madrid fell broadly in a quiet and featureless session as investors stood off before Wednesday's municipal, regional and European parliamentary elections. The general index fell 2.40 to 223.35.

Banks led the declines. Banco de Bilbao was 39 percentage points lower at 1,367 per cent of nominal market value. Banco Popular fell 22 percentage points to 1,453 per cent.

Telefonica rose slightly against the market by 1 percentage point to 189 1/2 per cent. Chemicals weakened.

SOUTH AFRICA

A LATE rise in the bullion price rescued Johannesburg gold shares from listlessness caused by a higher financial rand to leave prices higher on the day. Institutional investors were also deterred by Friday's poor dividend announcement from Gencor, although the group's stock rose 25 cents to R57.50.

The announcement from Randfontein that political unrest would affect gold output pushed R3.00 from its share to R45.00 in a most-

ly higher sector. Bellwether Vaal Reefs rose R3.00 to R417.00. Freegold rose 50 cents to R54.00 and Driefontein gained 75 cents to R101.50. Kloof added 75 cents to R44.25.

Diamond issue De Beers followed golds upward, by 15 cents to R39.00 and mining house Anglo American joined suit to add 75 cents to R78.75.

Industrials were quietly steady. Barlow Rand was still at R17.50. Sasol gained 75 cents to R11.70.

Mandarin's share price soars at HK debut

By Kevin Hamlin in Hong Kong

SHARE PRICES in Mandarin Oriental International, the hotel group spun out of Hongkong Land in a massive reorganisation by its parent, Jardine Matheson Holdings (JMH), soared to HK\$5.20 (66 US cents) in first day trading on the territory's stock exchange yesterday. This is more than three times the HK\$1.53 rights price and some 25 per cent above the company's net assets per share.

Turnover in Mandarin shares, at HK\$104.5m, was the highest of all stocks yesterday, and 19.6m shares changed hands. Securities analysts had estimated that Mandarin would trade in a HK\$4 to HK\$4.50 band. Mandarin has net assets per share of HK\$4.15, according to the rights issue prospectus.

HK Land shareholders were offered 98 per cent of Mandarin in a one-for-five rights issue earlier this year, while 20 per cent was sold to JMH's new holding company, Jardine Strategic Holdings (JSH), at market price. JSH took up its rights and holds a controlling 35 per cent of Mandarin. Some HK\$750m was raised.

The listing of Mandarin, which follows last December's demerger of Hongkong Land's former food retailing division, Dairy Farm, completes the group's reorganisation. HK Land has consequently been pruned into a purely property company in a move that JMH says has released the company's hidden value to shareholders.

Mandarin has a portfolio of nine hotels: two wholly-owned, five with equity interest, and two managed. The Mandarin in Hong Kong and the Oriental in Bangkok are widely recognised as being among the best in the world. The company's net assets amount to just over HK\$2m, and it forecasts an after-tax profit of not less than HK\$190m this year.

TOKYO

SELECTIVE small-lot buying helped drive Tokyo share prices to an all-time high yesterday, writes Shigen Watanabe of Jiji Press.

The market lacked vigour as institutional and other investors retreated to await the effects of the Venice summit on foreign exchange and interest rates.

The Nikkei average of 225 select issues gained 159.88 points from last week's close to the new peak of 25,523.89. Volume was 678.47m shares compared with last Friday's 1.24m shares. Advances led declines by 536 to 358, with 138 issues unchanged.

Trading volume fell in large capitalisation stocks which had performed strongly since the beginning of this year, reflecting a wait-and-see attitude among investors. Nippon Steel rose Y1 to Y360, but on trade of only 5.88m shares.

Other large-capital shares closed mixed. Mitsubishi Heavy Industries added Y1 to Y611 and Kawasaki Heavy Industries was Y3 higher at Y518, while Ishikawajima-Harima Heavy Industries ended Y2 lower at Y590.

Buying interest was weaker in export-oriented shares. Sony shed Y10 to Y3,210 and Hitachi finished unchanged from last week's close at Y1,070. NEC and Matsushita Electric Industrial gained Y10 and Y20 respectively with only 1.06m NEC shares and 1.15m of Matsushita changing hands.

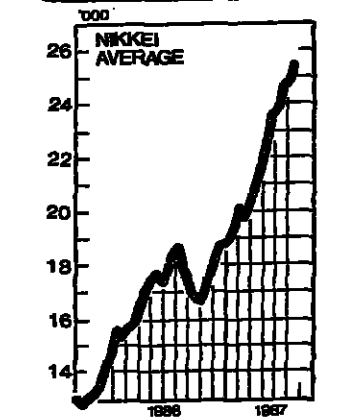
There was, however, strong selective buying of issues backed by good corporate news. Mitsubishi Electric topped the active list on trade of 38.24m shares and jumped Y30 to Y801. Its popularity reflected investor appraisal of its strong sales of big colour television sets.

Fujitsu surged Y50 to Y1,110 on the view that it is making gradual progress towards a settlement of its dispute with IBM of the US over a computer software copyright infringement. Fujitsu was the seventh most active stock on trade of 12.90m shares.

Mitsubishi Rayon, the second

most active stock on trade of 20.61 shares, advanced Y10 to Y540. Central Glass rose Y35 to Y735 with 17.68m shares changing hands. Both were sought after as lagging issues within the chemicals sector.

Pharmaceuticals and biotechnology issues received renewed attention amid the likelihood that the Ve-



nice summiters will discuss plans to combat AIDS. Daiippon Pharmaceutical rose Y50 to Y3,320.

Large food processors also fared well, with Ajinomoto Y80 higher at Y3,360 and Kirin Y70 up at Y2,970. Onoda Cement, with 18.86m shares traded, rose Y20 to Y740 on the strength of plans to redevelop idle landholdings. Kurabo Industries ended Y13 higher at Y502 on rumoured buying of its stock by speculators. The recovering crude oil market pushed Cosmo oil Y15 higher to Y655.

Bond prices fluctuated in quiet trading. In early dealing the yield on the benchmark 5.1 per cent government bond, maturing in June 1996, slipped below 3 per cent to reach 2.99 per cent, supported by speculative dealer buying.

When the yield fell below 3 per cent, however, large sell orders were placed and the yield fluctuated in a range of 3.000 per cent to 3.050 per cent before ending the day at 3.020 per cent. The yield stood at 3.050 per cent at Saturday's close.

HONG KONG

HEAVY institutional buying helped Hong Kong share prices to a third successive record close after profit taking had trimmed early gains. The Hang Seng index closed up 3.73 at 3,068.66 but off the day's high of 3,096.13. Turnover fell to HK\$1.42m from Friday's HK\$1.53m.

Utility shares were among the front runners on strong US and Japanese institutional demand. Hongkong Telephone rose 50 cents to HK\$13.90, China Gas 10 cents to HK\$17 and China Light was a steady HK\$53.

Properties, however, fell back slightly. Sun Hung Kai lost 40 cents to HK\$18.70, New World fell 20 cents to HK\$12.10 and HK Land 5 cents to HK\$9.65 as the group's shareholders were offered a one-for-five rights issue.

Banks moved forward.

SINGAPORE

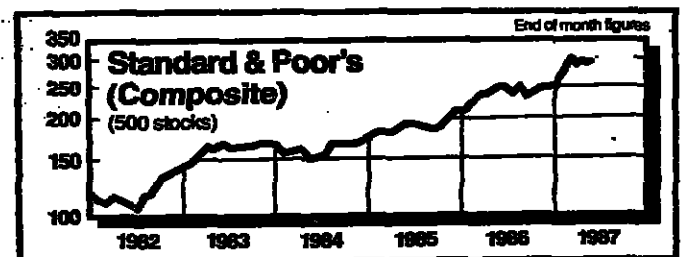
HEAVY SALES of Malaysian and blue chip issues as investors cashed in their profits pushed Singapore prices to record turnover. The Straits Times industrial index fell just 2.71 to 1,241.00, however, as the market absorbed much of the selling.

Turnover hit a new peak of 80.5m shares, up from Friday's 72.2m and above the previous high of 79.7m shares on May 14. Volume was swelled by the residue of a sale be-

gun on Friday by the government's Temasek Holdings of a 10 per cent stake, or 15m shares, in Sembawang Shipyard. Sembawang, which will remain 64 per cent owned by the government, closed up 4 cents at S\$4.04 with 15.8m shares changing hands.

Falling blue chips included Far East Levinton, by 10 cents to S\$3.56, Geylang, by 5 cents to S\$6.70, Haw Par, by 4 cents to S\$4.86 and Shangri La, which lost 5 cents to S\$5.05.

KEY MARKET MONITORS



STOCK MARKET INDICES			
	June 8	Previous	Year ago
NEW YORK			
DJ Industrials	2,351.84	2,328.15	1,985.50
DJ Transport	1,001.42	998.68	795.38
DJ Utilities	201.05	198.64	187.76
S&P Comp.	286.72	283.45	245.67

LONDON FT			
	1,727.2	1,729.9	1,329.5
SE 100	2,228.4	2,228.8	1,811.50
A All-share	1,109.39	1,109.93	792.95
A 500	1,241.40	1,240.76	876.00
Gold mines	395.5	398.3	413.0
A Long Ind	8.85	8.98	8.17
World Act. Ind	131.29	131.46	90.28

TOKYO			
	25,523.89	25,271.30	17,008.3
Nikkei			
Tokyo SE	2,155.28	2,161.01	1,316.29

AUSTRALIA			
	closed	1,778.0	1,280.2
All Ord.			
Mitels & Mins.	closed	1,073.7	590.2

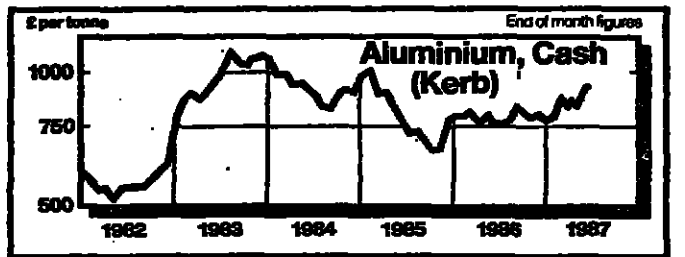
AUSTRALIA			
	closed	166.81	241.24
Credit Aktien			

BELGIUM SE			
	closed	4,568.72	3,580.00

CANADA			
	June 8	Prev	
Toronto	4,793.00	4,822.00	
Met & Mins.	2,849.6	2,836.4	2,219
Composite	3,729.3	3,728.1	3,080.7
Westbank			
Portfolio	1,882.26	1,882.58	1,576.28

DENMARK SE			
	closed	closed	227.80
SE			

FRANCE			
	closed	413.40	337.2
CAC Gen			
Ind. Tendence	closed	102.80	79.18



CURRENCIES (London)			
	June 8	Previous	Year ago
US DOLLAR			
£/\$	1.8046	1.8185	2.2527
DM/\$	1.4340	1.4370	2.2510
FF/\$	6.0350	6.0500	9.8925
SP/\$	1.5005	1.5020	2.4000
Y/\$	2.0025	2.0040	3.2025
Y/\$	1.307	1.313	2.1415
SE/\$	37.30	37.80	61.35
SE/\$	1.3425	1.3435	2.2015

US BONDS			
	June 8	Previous	Year ago
Treasury			
7% 1989 100%	7.85	100%	7.75
7% 1994 92%	8.381	92%	8.43
8% 1997 99%	8.508	99%	8.579
8% 2017 100%	8.87	99%	8.798

INTEREST RATES			
	June 8	Previous	Year ago
Bankers' certificates			
3-month offered rate	8 1/4	8 1/4	
SP	4	4	
DM	3 1/4	3 1/4	
FF	8 1/4	8 1/4	

FINANCIAL FUTURES			
	June 8	Previous	Year ago
US Treasury Bonds (CBT)			
9% 20s of 100%	90-19	90-19	91-04
June 92/77	92/77	92/77	92/70
3-month US\$	7 1/4	7 1/4	
6-month US\$	8 1/4	8 1/4	
US Fed Funds	8 1/4	8 1/4	
US 3-month T-bills	5.87	5.87	

COMMODITIES (London)			
	June 8	Prev	
Silver (spot)	479.20p	482.20p	
Copper (cash)	335.25p	335.75p	
Cotton (July)	£1,283.50p	£1,304.00p	
Oil (Brent)	£16.825	£16.75	

GOLD (\$/oz)			
	June 8	Prev	
London	\$455.75	\$454.25	
Zurich	\$454.75	\$452.75	
Paris (Bong)	closed	\$450.18	
Luxembourg	closed	\$448.46	
New York (August)	\$454.30	\$455.00	

FINANCIAL FUTURES			
	June 8	Previous	Year ago
US Treasury Bonds (CBT)			
9% 20s of 100%	90-19	90-19	91-04
June 92/77	92/77	92/77	92/70
3-month US\$	7 1/4	7 1/4	
6-month US\$	8 1/4	8 1/4	
US Fed Funds	8 1/4	8 1/4	
US 3-month T-bills	5.87	5.87	

COMMODITIES (London)			
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SECTION III

FINANCIAL TIMES
SURVEY

Opposites meet in the Austrian capital: East and West, urbanity and provincialism, baroque glories of empire and

the first stirrings of modern building, deep conservatism and municipal socialism. Patrick Blum reports on a city fighting to maintain a role and to protect its prosperity.

City where the past lives on

MODERN VIENNA is a city of contradictions and conflicting aspirations. It is inhibited by its past but comforted by tradition and imbued with a deep-seated conservatism. "Vienna looks to its past with optimism," was the caustic phrase of one young Viennese official. This is not entirely fair, but it points to the source of much resistance to change.

Once the administrative hub of a vast empire of some 55m people of 11 nationalities, Vienna adapted only with great difficulties to a much reduced role after the collapse of the Austro-Hungarian monarchy at the end of the First World War. The scars inflicted by civil war, Nazi annexation to Germany, the Second World War and the ensuing occupation of the city by Allied and Soviet forces, have not entirely healed. They have also encouraged a tendency to seek refuge in nostalgia for the pomp and circumstance of imperial times.

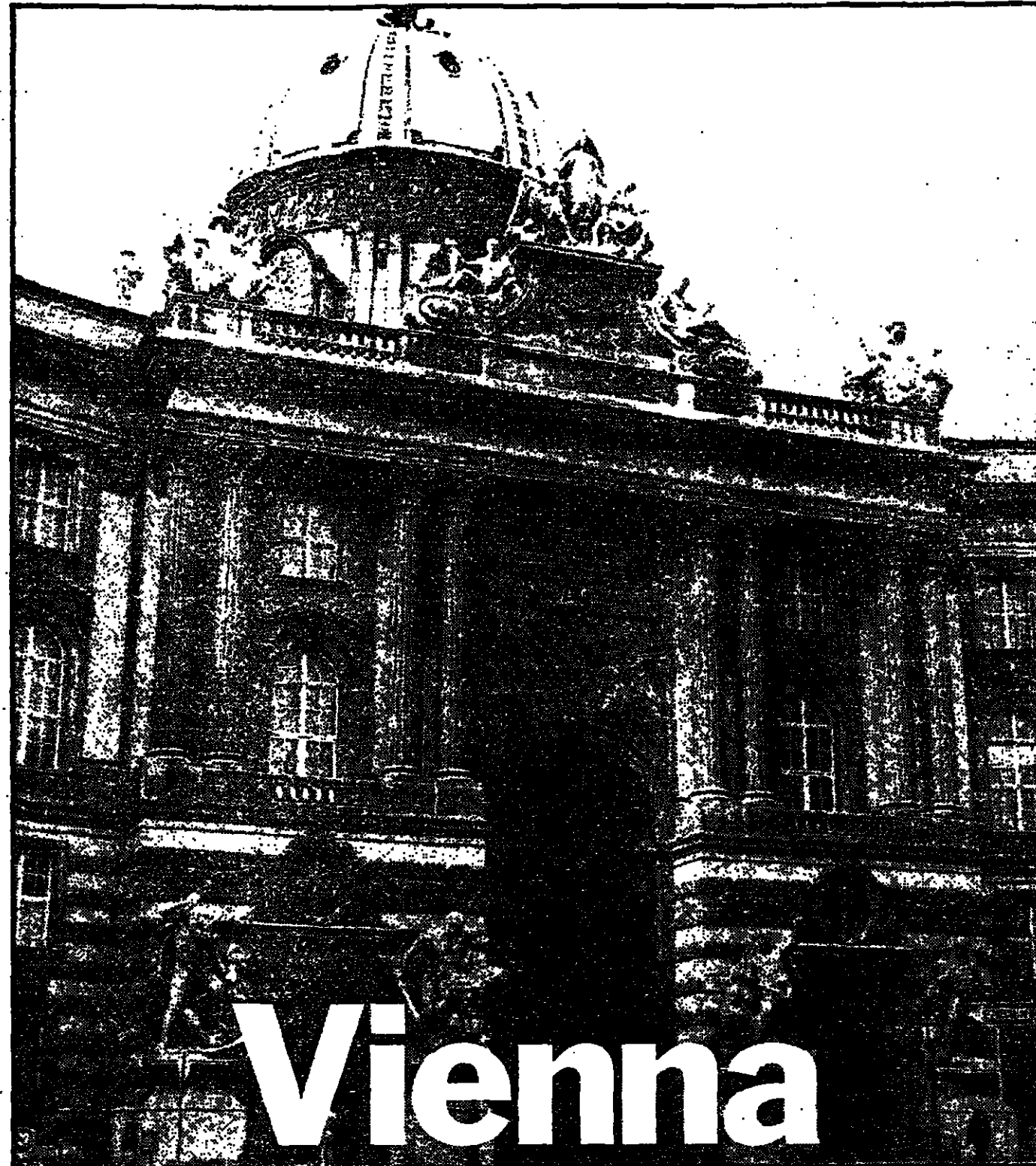
The Viennese obsession with ceremony and protocol—graduations of status are meticulously followed—predates the republic and harks back to the days when thousands of civil servants in Vienna administered the Habsburg lands that now form part of neighbouring states.

Vienna's situation has made it a crossroads between the northern Baltic and the Adriatic in the South and between East and West along the Danube with a long history of conflict and settlement dating back to Roman times when, as Vindobona, it underwent rapid economic development.

In the 16th and again in the 17th century it withstood and repelled sieges by Turkish forces halting the westward drive of the Ottoman Empire. The Congress of Vienna which ended in 1815, marking Napoleon's defeat, established a new European order and with it Vienna's reputation for international diplomacy. Viennese politicians have in recent years sought to revive that reputation by making their city an international centre of East-West dialogue and contact.

Since the signing of the Austrian state treaty in 1955 which marked the return to full sovereignty after the war and ended 10 years of occupation, Vienna has played host to numerous East-West summits and mini-summits as well as to a large number of international conferences. Austria's neutral status has helped.

Politicians believe that Vienna's historical heritage and uni-



Vienna

Michaelertertor: Gateway to Hofburg, the former Imperial palace, now part museum, part conference centre.

que central European location can also help to build links with Austria's communist neighbours. Dr Helmut Zilk, Vienna's Socialist mayor, believes that a new lift can be given to relations between his city and neighbouring capitals, but that small steps are better than large and meaningless gestures. Dreams of the monarchy are out, he says.

Steps that can be taken include improving communica-

tions and transport links between Vienna, Prague and Budapest and simplifying border crossings to encourage economic and cultural exchanges. More ambitious, perhaps over-ambitious, plans include staging a World Fair jointly with Budapest in the mid-1990s.

Efforts to make Vienna an international city have borne fruit in other directions. During the 1970s Dr Bruno Kreisky, then Chancellor, pushed ahead

with several controversial projects. He fought hard and successfully to attract General Motors—then looking for a new European manufacturing site—to Vienna both to provide jobs and to underpin western commitments to the Austrian capital.

The amount of state funding extended to GM and for subsequent projects drew strong domestic criticism. A vast office complex, known

locally as Uno City because it is the home of several United Nations organisations, was built on the northern banks of the Danube making Vienna the third largest UN centre after New York and Geneva.

In May a new international conference centre was opened just next door to the UN buildings. The centre has met opposition from the conservative People's Party which says that it will lose money and

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Conference centres: unpopular new baby

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argues that Vienna has enough conference venues including a more glamorous one in the Hofburg, the former Imperial Palace.

Conference business makes an important contribution to the financial health of Vienna's tourist industry and hotels especially during the low season between November and March. With about two million foreign visitors every year, tourism is an important source of revenue.

About one fifth of Austria's population lives in Vienna making it the country's most important economic centre. It has a large manufacturing base including major multinationals such as GM, Philips and Siemens which have found their Austrian base profitable. Both GM and Philips have recently expanded their activities.

The emphasis is now moving away from large-scale investments to smaller ventures in much sought after new technologies and high-tech research. Two new ventures in these fields have recently been agreed.

Dr Zilk has sought to cut red tape to encourage investment but faces tough competition from other parts of Austria, especially from the western provinces, which are closer to the increasingly important west European market.

The continued divide between the high growth western and less dynamic eastern parts of Austria remains a source of concern in Vienna.

The city authorities hope to compensate for these drawbacks by building on Vienna's traditional reputation as centre of expertise in East-West trade. Recent improvements of East-West relations are welcome in Vienna which hopes to gain from any new momentum in trade with the Comecon. Creditanstalt-Bankverein, the country's largest bank, recently opened an office in Prague and is opening one in Moscow soon with this in mind.

Whether business with Austria's eastern neighbours will be sufficient to compensate for Vienna's position on the fringes of western Europe is debatable. East-West trade has suffered some sharp reverses from the fall of prices for oil and other raw materials and from the lack of hard currency revenue in the Comecon countries.

The city faces other problems. Its population is ageing and declining. Its universities and the freer lifestyle still attract

young Austrians, but the limited career opportunities drive many graduates to leave the capital. The town has lived up considerably in recent years but most younger Viennese continue to look with envy to London, Paris or New York which they think less stuffy.

The cultural achievements of turn of the century Vienna and of the years immediately following the First World War stand in sharp contrast to the more purely material achievements of recent years. These earlier achievements are widely admired, yet it is too often forgotten that they were produced in the teeth of fierce opposition. Gustav Mahler and Sigmund Freud were hounded out of Vienna.

Pre-war violence was followed by post-war reconstruction with its seedier side immortalised by Orson Welles in the film *The Third Man* showing survival at the margins under the indifferent eyes of the four occupying powers. The attitudes of several generations were shaped in those difficult years. The fear of renewed conflict laid the ground for Austria's present day system of social consensus which can make for bland rather than constructive policies.

"Red Vienna" as it became known, was a model of social welfare for the rest of Europe. In the 1920s the city built much needed council housing and established a mass health care system for the bulk of the population. Diseases caused by appalling social conditions were eradicated, but these achievements were not matched in other areas. Democracy remained skin deep and died in the civil war of 1934.

By the time of its demise in 1938 the Habsburg monarchy had long become an empty shell, but its disappearance left a vacuum that was not filled by Austrian social democracy with its emphasis on pragmatic reforms and the development of municipal socialism.

There remains an air of unreality about Viennese social and political life. The gap between individual aspirations and the many many survivals from an old-fashioned, hierarchical society is inherited from a past which remains to this day an important part of the city's present. Overcoming that past is still a major challenge for the city fathers in their neo-gothic town hall completed just over 100 years ago.

"Hurry up, James!"

"Let the rest of the world wait, Kara."

James Bond (Timothy Dalton) and Kara (Maryam d'Abo) in a scene from "The Living Daylights" Photo: Helmut Kolfer, Saksawa/Kraus



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VIENNA 2

Centre for counter-trade

The East-West business

IT IS SAID that the names in the Vienna telephone book read as a potted history of central Europe. It may be a cliché but it provides a vivid example of the strong links that still exist between modern Austria and the lands that once formed part of a vast empire.

It is such links, maintained despite the division of Europe into eastern and western camps, that have enabled neutral Austria sandwiched in between, and more especially Vienna, to become a major strategic listening post for East-West trade and countertrade.

A large number of international companies have been drawn to the Austrian capital to take advantage of local expertise as well as of the many, small but sometimes crucial, benefits that can be gained by having a base there. In addition to qualified and experienced East European specialists, numerous services from translators to couriers are available. An urgent translation of a key document into or from Bulgarian, Hungarian, Russian, Czech, Slovak, or Serbo-Croat, among others can be done promptly and efficiently.

Communications with Eastern Europe are easier than anywhere else in Western Europe—Bratislava, Prague, Budapest are all within a few hours' drive from Vienna. There are regular daily railway and airline services to most East European capitals and there is plenty of information available about travel, business conditions, on where to stay and on the do's and don'ts of doing business in the Comecon.

Dr Alexander Waldstein, managing director of AWT, the trade and counter-trade subsidiary of Creditanstalt-Bankverein, says that Vienna offers four major advantages:

- It is physically near the market.
- It has the personal contacts necessary for what he describes as "very much a people's business."
- There is a cultural affinity which he believes makes it easier for a Viennese to establish an understanding with other East Europeans than for other people.

- Many East European companies are located in Vienna or have representatives there.
- International concerns from Western Europe, North America and the Far East settle in Vienna or employ the services

of Viennese companies because it gives them an advantage over competitors elsewhere, although last year the sharp decline in East-West trade saw several close down their offices in the Austrian capital.

Austrian trade with Eastern Europe, which tends to reflect closely broader trends in East-West trade has not escaped the downturn. Austrian exports to the European Comecon countries declined by over 15 per cent in 1986 to Sch 33bn, representing 9.6 per cent of all Austrian exports—the lowest share since the signing of the Austrian state treaty in 1955 which gave Austria back its independence.

According to Dr Jan Stankovsky from WIFO, the Vienna economic research institute, initial results for this year show no improvement. Austrian exports fell by almost 30 per cent in the first three months compared with the same period in 1986.

He attributes the decline to low price levels for raw materials and oil—the main export from the Soviet Union—and to an enduring need for the East European countries, including the Soviet Union, to curtail imports in hard currency or make these dependent on exports to the West.

Nevertheless, despite the downturn Austria did relatively better than most of its competitors last year by increasing by 7 per cent its market share in Eastern Europe among the group or among members of the Organisation for European Co-operation and Development.

Dr Stankovsky believes that there will be a growing demand for countertrade from eastern Europe. Countertrade is estimated to represent between 12 per cent and 15 per cent of Austrian exports to eastern Europe and the share is expected to rise as east European countries seek to maximise their exports of manufactured goods to the West.

International companies are often very experienced in trading with eastern Europe but they seek advice and assistance from Viennese firms to "maximise" their business chances, Dr Waldstein says. This is especially true for the more complex transactions in which the expertise of Viennese institutions is internationally recognised.

Viennese countertrading firms says that their success is due at least partly to their

flexibility and to their willingness to innovate. AWT, for example, says it is currently negotiating a major countertrade deal that, because of its size and structure, could break new ground in trade with the Soviet Union. Many countertrade techniques which are now used world-wide were pioneered in East-West trade and often involve complex tie-ups between buyers, sellers and brokers in different markets. In switch trading one eastern country's trade surpluses with another eastern country can be made convertible to pay for imports from the West.

Switch trading is mainly used in correcting imbalances in long-term bilateral agreements and often involves complex tie-ups between buyers, sellers and brokers in different markets. In switch trading one eastern country's trade surpluses with another eastern country can be made convertible to pay for imports from the West.

The country making the balances available is compensated with imports from outside Comecon. Finding these imports and constructing an appropriate financial package is the switch trader's main skill.

Countertrade developed mainly because of the non-convertibility of local currencies and as a way to overcome shortages of hard currency to pay for imports. The lack of efficient sales organisations and the limited choice or low quality of products for export have also encouraged many countries to resort to countertrade as a means to market their goods.

Despite some improvements most of these problems persist and countertrade demand is likely to remain high.

For historical reasons London has better and more experienced commodity traders than Vienna, Mr Waldstein says, but when it comes to countertrade Vienna has the greater expertise, built on decades of trading and dealing with eastern Europe.

Patrick Blum



Vienna headquarters of Oesterreichische Laenderbank, one of the two state-owned Austrian commercial banks.

VIENNA'S REPUTATION as a centre of expertise for East-West trade owes much to the work of a few persistent individuals who, with a mixture of opportunism and foresight, have built successful businesses that have become internationally known.

Mr Simon Moskovics, a witty 72-year-old Hungarian-born trader, banker and fixer, now head and major shareholder of Vienna's Bank Winter, saw opportunities where others saw obstacles. Today he is regarded as an "eminence grise" of compensation trading and one of the originators in the tricky business of switch transactions and forfaiting. His bank has acquired a reputation for innovation, especially for handling complex deals.

He has come a long way since the day in April 1949 when as a youngish man in his mid-thirties he left his native Hungary for Vienna after the communist takeover in his country. "I thought there would be more opportunities in a free enterprise environment," he says.

His father ran a modest bookshop in Debrecen, western Hungary, where he was born and at 15 he used to scour the town in search of cheap books for the shop.

Later he worked out several cost-cutting schemes to produce

locally some of the books originally imported from Poland and Czechoslovakia. What these first experiences taught him, he says, is the power of "the small idea" carried through with perseverance.

In 1936 he struck one of his first major deals which involved selling Italian oranges through Hungary to Poland in return for Polish horses for Italy. Each transaction had to be paid separately with payments including a large number of barter tickets channelled through Paris. It was a forerunner of many similar post-war deals.

In 1959 after several years on his own he bought up and re-established the Bankhaus Winter, defunct since 1938 after the Nazi annexation of Austria. He says that he needed a bank to handle a growing volume of business built up in compensation trade.

Switch arrangements under which clearing payments for trade between two countries are used for payments to third parties had become increasingly

common. "After the war without switch you couldn't do any business in Eastern Europe or China, and it was important to know the business well."

He saw his chance and gradually acquired a reputation as a leading switch dealer. "Large banks in Britain and Switzerland sent me their clients to help them with this type of business," he says.

The bank has since flourished with assets worth Sch27.9bn on July 1 1986 and earnings before tax and allocations to reserves of Sch153m for the six months compared with Sch231m for the whole year of 1985.

The bank's financial year was changed from December 31 to June 30 following its transformation last year into a joint stock company with a paid-up capital and reserves of Sch1.6bn including Sch300m in supplementary and subordinated capital. Mr Moskovics holds 25 per cent of the shares and the rest is held by foreign shareholders.

The bank, he says, has always

handle such applications liberally though on a case-to-case basis. By now about 20 non-Austrian banks are represented in Vienna either by affiliate banks, branches, or by shareholders above 25 per cent in an Austrian credit institution.

The narrowness of Austrian financial markets can be gauged from the fact that about 40 per cent of the assets and liabilities of the country's biggest three banks—Creditanstalt-Bankverein, Girozentrale, and Oesterreichische Laenderbank, all of them with headquarters in Vienna, are in currencies other than Austrian. More limited testimony to the international links of the Austrian financial system is provided by the fact that 8 to 10 per cent of new Austrian bond issues are placed abroad.

Two years ago the Vienna bourse created a small stir with a sudden bull run which was helped along by the narrowness of the market. The aggregate market value of Austrian equities and quasi-equities (such as participation certi-

icates) held by independent Austrian shareholders is only around Sch 25bn (plus another Sch 5bn held by independent investors abroad) and the number of small shareholders in Austria is estimated to be only about 150,000 to 200,000 or about 2 to 3 per cent of the population. Some 50,000 of these are thought to have taken the plunge in 1984-85.

Limited though this revival of the equity was, it encouraged new issues and listings with a market value of Sch 1.6bn last year. The bourse may gain further scope from the privatisation plans of the Austrian Government.

In the autumn, private investors are to be invited to subscribe to the flotation of a minority stake in the Government-owned oil company, OeMUV. Much will depend upon pricing and other circumstances. With some Sch 900bn in private savings accounts, there is money around to invest.

W. L. Lusitana

Profile: Simon Moskovics

Switching clever

The bank also has an interest in several international and Austrian financial institutions.

Despite diversification into new areas of activity, Mr Moskovics' own experience and intimate knowledge of Eastern Europe, continue to attract much business to the bank. The bank has had a large and growing number of inquiries recently about joint ventures in eastern Europe. "People want to know what is practical and possible and we advise them."

He believes that joint ventures in eastern Europe remain at an experimental stage and that there are still many technical problems to be resolved. Finance alone cannot ensure success, he says. "To work, a joint venture needs the free movement of people as well as of money," he says.

Caution is important, he says. "We don't have any Latin American or African debt although we've solved major problems in these regions." The bank always seeks to minimise risk, he says.

With his son firmly in the saddle as number two in the bank, Mr Moskovics could contemplate a quieter life, but he dismisses any idea of retiring. "I have an 87-year-old friend who is pushing me to go into a new business with him in Luxembourg. So why should I retire?"

Patrick Blum

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VIENNA 3

Industry

Incentives on tap for brainwork

VIENNA IS both better and worse off than the rest of Austria: itself one of the more prosperous countries of western Europe. Better off because, lacking all but a tiny bit of agriculture, mainly a few vineyards, it has a gross regional product per head higher than the Austrian average; worse off because, for historic reasons, Vienna shares with the rest of Eastern Austria a less than average growth rate.

Unemployment, which averaged 4.8 per cent last year, is about one percentage point below the national average.

A population of about 1.6m, equivalent to about 20 per cent of the Austrian population, produces about 27 per cent of total Austrian output, making Vienna the largest single market within Austria and one of more than average purchasing power. The dominating position of West German exports in Austria, especially those of consumer durables, is well known. But the Viennese bourgeoisie are a little less German-oriented than the rest of the country.

Wholesale and retail trade in Austria often have quasi-cartel characteristics. For the outsider and newcomer the way in may not always be easy. The search for market openings and for agents can be simplified with the help of the Federal Business Chamber (Bundeskommerzialrat), in which all businesses, and hence also the importers, are represented.

For the intending investor in Austria, the city has a special agency Wiener Wirtschaftsförderungsfonds, which is in the business of attracting new ventures. It has a land bank of more than 2m sq metres from which it makes plots available at what are likely to be heavily subsidised rates. This agency complements the Federal Government's industrial co-operation and development agency (ICD).

In the past the city and government have taken on between a quarter and a third of the investment costs of such, by Austrian standards large, undertakings as a US\$700m General Motors engine and gearbox plant at Aspern, in the outskirts of Vienna, plus a Schönbühel extension, and a Schönbühel plant constructed for the Philips concern in addition to its existing facilities in Austria.

Chief manufacturing industries—1985		
	Output Sch (m)	Employment 1,000 pers
Food, drink, tobacco	21,219	15.2
Electrical engineering	21,219	34.3
Chemicals	12,684	12.4
Mechanical engineering	11,353	14.4
Motor and other vehicles	9,953	9.3
All manufacturing	98,869	111.8

Source: City of Vienna

These and other, smaller, ventures were subsidised in a conscious effort to combat unemployment. Lately the emphasis has begun to change. Mr Hans Mayr, city councillor in charge of finance and business, is anxious to attract more research and development to Vienna rather than mere branch plants.

This is a matter of priorities and an attempt to make use of the intellectual resources of the Vienna universities, but also a reaction to the fiscal problems of the Federal Government. High priority has been given to reducing the chronic budget deficit, and resources for industrial incentives need careful husbanding.

At the moment, the city fathers are especially proud of two new ventures for research and development: a joint US-West German-Austrian venture for gene-technology, molecular biology and biochemistry, which city and federal governments are subsidising with Schönbühel; and a facility for preparing for commercial production a highly specialised sensor designed by a team led by Professor Otto Prohaska at Vienna Technical University.

The commercial partners in the former venture are Genentech, of Los Angeles, and the Austrian affiliate of a German concern, Boehringer Ingelheim. They will link up with Vienna University which is transferring three professorships to the new centre and founding two additional ones. The brief is basic gene-technological and pharmaceutical cancer research.

In the interest of interdisciplinary cross-fertilisation Prof Prohaska's outfit will be lodged by the new institute. His sensor is able to trace electrical currents in a three-dimensional

pattern and can be used, for instance, to locate tumours in the brain or to track what happens in the combustion chamber of a petrol engine.

Apart from the intermediate aim of providing employment and innovation, the broader objective of the incentives proffered by the city of Vienna is to help close the growth gap between eastern and western Austria. The reasons advanced for its existence include the fact that eastern Austria was occupied by the Soviet army after the Second World War, even though the Russians left more than 30 years ago and the relative distance of the region from the growth centres of West Germany, Switzerland and Italy despite the fact that western Austria with its better showing, is less than two hours' motorway drive further west than Vienna.

Mr Norbert Geldner of the WIFO economic research institute in Vienna also blames a lack of entrepreneurial and innovative drive in the eastern regions. The Vienna elite was brought up to march in step rather than to steal marches, he argues, and that attitude still is widespread. It is a bit reminiscent of what used to be said about Britain, at least in pre-Thatcher days.

It is true that the presence of a group of multinational concerns has helped greatly to keep Viennese manufacturing industry buoyant. Even after a period of shrinking, it still accounts for a quarter of total activity in the capital. General Motors and Philips have already been mentioned, but there are others, such as Siemens from West Germany and Unilever as well as the three major West German chemical companies.

Some of these are in Vienna for historical reasons, others have come more recently. The

reasons for doing so varied from case to case. In certain instances, the subsidies on offer may have been the deciding factor. But the proverbial labour peace in Austria is cited by many of the foreign investors.

Native technology is akin to that of the Germans, productivity in general below theirs, but that is compensated for by lower labour costs. That is true even after allowing for very generous fringe benefits usual in Austria.

Originally Vienna was mainly a springboard into the not especially large Austrian market. Austrian membership in the European Free Trade Association (EFTA) and the existence of a treaty for the duty-free exchange of industrial goods with the European Community have widened the scope.

But the fact remains that Vienna is close to the periphery of western Europe, and, for that matter, of Austria. The city fathers are aware of that and are trying to find a compensating advantage in Vienna's proximity to eastern Europe. Vienna has for long been used as a base for eastern European operations of a number of western concerns. The thaw of the Gorbachev era may come as a help.

Philips, for instance, has lately undertaken a joint venture between its Austrian company and a business in Bratislava, slightly over an hour's drive away across the Czechoslovak border. Certain white and brown goods are to be made in Bratislava for the eastern European market.

An attempt is under way to give a boost to such East-West co-operation by staging a world's fair in 1996 jointly at Vienna and Budapest. Dr Erhard Busek, deputy mayor of Vienna, says with a sly grin: "If the big boys co-operate—why shouldn't the small fry?" But so far at least neither the money nor the political blessing of Moscow are assured.

In any case, while the eastern European connection does offer Vienna an element of comparative advantage, it is limited and Austria industry pins greater hopes on tightening its relationship with the European Community.

W. L. Luetkens

Profile: The Mayor

Job for a lifetime

DR HELMUT ZILK, the Socialist Mayor of Vienna, has one of the plummiest jobs in Austria. As mayor he presides over the affairs of the country's most important city and as a socialist he is practically guaranteed a job for life since Vienna has been a traditional heartland of the Socialist Party commanding healthy majorities in local elections.

The recent decline in the party's popularity nationally is not expected to end its dominance in the Vienna elections due next year.

A former minister responsible for the arts until his appointment as mayor after a government reshuffle in September 1984, he has brought to his job a characteristic dash of showmanship. As minister he was often seen at opera and theatre premieres. He maintained and has continued to maintain a high public profile to the annoyance of critics who accuse him of meddling and of constantly seeking the limelight.

In his short spell as minister he entered into a prolonged public quarrel with Lorin

Maazel, the American conductor and at the time director of the Vienna State Opera, over the running of the opera. The row did nothing to polish the Government's image and may well have had to do as much with Dr Zilk's headstrong and flamboyant personality as with the way the opera was being administered.

For all that he has proved a popular mayor and remains highly placed among Austrian politicians in the public popularity stakes despite critics, even within his own party, accusing him of failing to clean up and cut bureaucracy in Vienna's public administration. A proponent of more open and more liberal government he has supported moves favouring a "grand coalition" of Socialists and of the conservative People's Party in the city government to tackle pressing problems.

He centre especially on the provision of services which to an outsider from London, New York or Paris may look remarkably efficient and well run, but which to the Viennese show signs of creeping paralysis. There was considerable discon-

tent during the winter about the slow pace at which snow was cleared.

In fairness it must be said that snow was removed from all the main streets and public transport services were maintained without a noticeable break throughout the worst of the winter's weather, but there were delays and snow drifts piled high in side streets caused considerable public annoyance.

Vienna has extensive public services, a large and well maintained public housing sector and substantial health facilities, most of which were established after the First World War under the impetus of what became known as "municipal socialism." Dr Zilk says that the transformation of the Austrian capital in those years shows what can be done. Providing for welfare is clearly at the heart of his own vision of socialism.

"Vienna is a welfare city-state in which no one should go hungry or be without a roof," he says. The recent rise of unemployment to about 4.8 per cent troubles him, but he says, it is still below the rate in most other European cities.



Dr Helmut Zilk
Dr Zilk wants to see the city develop its role as an international centre of East-West contacts—building on its history with new ideas. He believes that it is possible to give a new impetus to relations between Vienna, Prague and Budapest by increasing exchanges and simplifying travel.

Austria and its neighbours all stand to gain from closer links, he says, although, as in other issues, he remains a pragmatist convinced that small steps are more likely to succeed than large gestures when it comes to practical politics.

Patrick Blum

Profile: Deputy Mayor

Bird of many colours

DR ERHARD BUSEK, deputy mayor of Vienna, is in a position which might have taxed the imagination even of a W. S. Gilbert. Dr Busek is both a member of the government of the Austrian capital with its 1.5m inhabitants and leader of the opposition in the city council.

In oversimplified terms he owes this quick of Austrian conservatism to one law which says that minority parties, in his case the conservative People's Party, should be represented in the Vienna government in keeping with their strength; and to another which says that portfolios are allocated by majority vote in the council, in this case by the Socialists. So Dr Busek and four other People's Party members sit in the government of Vienna with no specific jobs and only limited influence.

Having to do the splits in this fashion has not deprived Dr Busek, at 46 a member of the younger generation in Austrian politics, of his ready chuckle and a willingness to take unorthodox stands. He has been nicknamed "bird of many colours" because, though a mem-

ber of the "black" People's Party, he has publicly espoused "green" causes.

For instance, he says that Vienna ought to use its market power to discourage the use of the quantities and types of packaging that all too readily overburden refuse disposal services. Dr Busek opposes harnessing the Danube near Vienna for hydroelectricity—a proposal dear to the trade unions as a creator of jobs—since, he says, power can be bought in more cheaply, unless the project is part of a wider plan to create a more pleasant urban environment on areas along the river that are now wasteland.

Since Vienna is home to about a fifth of the Austrian population, Dr Busek's position as People's Party leader in the city is important in national politics as well. He is a deputy leader of the party, the second largest in the country and junior partner in the Federal coalition Government.

Quite apart from his green tinge, he often jars on the traditionalist conservative views of many People's Party personali-

ties with his continental-style liberalism (which they suspect is radicalism). "I believe we need a climate more favourable to encouraging performance, a climate less favourable to state intervention, better quality all around and a more international outlook," he says.

For Dr Busek the municipal politician that means greater emphasis upon attracting research and development work to Vienna and less on subsidising the setting up of new manufacturing industries. It also means more decentralisation within the city and less interference from an officialdom of which he says it believes it always knows best.

The city must come to an understanding with the surrounding state of Lower Austria for more co-operation. One abuse clearly in his mind is the occasional subsidy race to attract new investment. Co-operation, he says, is also needed to overcome the post-war pattern which has caused the economies of Vienna and the rest of Eastern Austria to grow more slowly than the



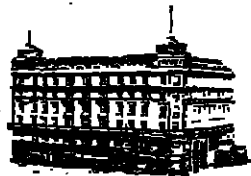
Dr Erhard Busek
With a sideswipe at the quasi-cartelisation of much business in Austria, Dr Busek says: "We have a competitive market system that is not really competitive," and in another context he says bluntly: "People here just like to stick at home." Dare he say so to his voters? "So far it has caused me no problems. I believe that at least the young are prepared to listen." And again, politicians should "not howl with the masses or with the press," but say plainly what needs to be done.

W. L. Luetkens

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VIENNA 4

In the cultural field quality does not come cheaply

Where the arts still count

THE VIENNESE love a good old-fashioned row about music and the arts. Public opinion, or that part of it which gets into the papers, got worked up about the appointment of Mr. Claus Feymann as director of the Burgtheater, the National Theatre, and his reluctance to paper the house by issuing free tickets to deserving colleagues and officials, selling cheap tickets to young people instead.

The Viennese savoured the struggle which ended in the resignation of Lorin Maazel as director of their opera house and they waxed suitably indignant about the leaky roof of the Kunsthistorisches Museum, the Museum of Fine Art.

Partly it is sporting interest in scandal and conflict. But it also demonstrates the importance attached to the arts. One should add that for every grumble there is a countervailing triumph.

The Vienna State Opera with its orchestra, which plays as the Vienna Philharmonic when it is not in the orchestra pit of the theatre, are not only the flag-ship of Austrian culture. They also enjoy the highest international standing. The opera is a magnet to both Viennese and foreigners: when world stars are on the bill, queues for the few available tickets form up to two days in advance and the people in the queue, many of whom are only there to re-sell, occasionally come to blows.

Not the least of the arguments in Vienna is about the cost of the overstaffed state-run group of theatres consisting of the State Opera, the Volksoper, home of lighter works, and of the Burgtheater with its second stage, Akademie Theater and yet another, small stage.

The collective annual deficit, which is made good from the government budget, comes to Sch 1.5bn (about £280m)—a lot of money for a small state, as Dr Robert Jungbluth, secretary-general of the group, readily admits. But, he says, the figure is a bit misleading. Roughly one third of the subsidy flows back to the state in the form of taxes.

Another third goes in pensions to retired actors and other employees of the group. Besides, Dr Jungbluth argues, the theatres and operas bring business to Vienna which he estimates at twice the federal subsidy. Beyond that, in particular the opera does a lot for Austria's image abroad which has taken a few knocks lately.

The state opera is among the world's most expensive, with tickets on star nights ranging up to Sch 1,500 (about £280), which still leaves it below La Scala in Milan. Dr Helmut Drese, the new director, lays some of the blame for high costs on long standing, inflexible agreements with the unions which, he feels, should be renegotiated. But there also is the fact that quality does not come cheap. The orchestra with 150 members is the largest opera orchestra in the world. The repertoire is huge: there is a stock of some 45 operas which can be revived at short notice.

What the opera no longer has is a star quality resident ensemble such as that of the 1950s with singers such as Elisabeth Schwarzkopf and Anton Dermota. Dr Drese says that modern air travel put paid to that kind of thing, enabling stars to flit from continent to continent. But he is proud of a Mozart ensemble of young singers who will be able to show their mettle as he builds up a Mozart repertoire of nine operas in time for the bicentenary of the composer's death in 1991.

Dr Drese reckons that it should be possible to buy tickets for his opera at box office or agents at one or two days' notice for about one of every two performances. If not, try the hotel porter, provided you can find a hefty mark up.

Besides the state group, Vienna has a large number of independent stages, including some fringe theatre. Of necessity, their appeal is mainly to the German-speaker. That does not apply to a galaxy of museums and exhibitions. Before going, make sure the place is open: hours are wayward.

After prolonged rebuilding, the unique Schatzkammer has been re-opened, displaying the crown jewels, treasures and trinkets of a millennium of Holy Roman and Hapsburg emperors.

The Museum of Fine Art, besides a leaky roof, has collections of Rubens and Breughel which rank among the finest in the world. The Kunsthistorisches stages special exhibitions such as the blockbuster, two years ago, about Viennese culture and art from the rise of the bourgeoisie until the 1930s: its centre piece was Jugendstil, the Viennese variant of art nouveau, which has been enjoying an international vogue.

Two painters heavily represented in that exhibition, Klimt and Schiele, can be seen in the Austrian collection at the Upper Belvedere. On a more intimate level, the city maintains a charming watch and clock museum, tucked away in a passage of old Vienna.

These and many others apart, the central area of Vienna, roughly within the broad sweep of Ringstrasse, is a museum by itself worth exploring on foot. A leisurely walk will recall much of the history of what once was one of the great imperial cities of Europe: baroque palaces, many of them freshly painted and gilded, the massive pomp of the later 19th century, and the budding modernity of architects like Otto Wagner and the more austere Adolf Loos.

In a fit of polemics, Loos once said that the decorative is criminal. Fear not, even he relaxed, and Vienna with its traditional *Melange* of grandeur and kitsch is rich in decoration.

A Henry Moore figure, the sculptor's gift to the City of Vienna, rests in the waters of a fountain outside Karlskirche. The church, its outside recently cleaned, is one of the finest examples of Viennese baroque, architectural style of the heyday of the Habsburg empire.

W. L. Luetkens



A Henry Moore figure, the sculptor's gift to the City of Vienna, rests in the waters of a fountain outside Karlskirche. The church, its outside recently cleaned, is one of the finest examples of Viennese baroque, architectural style of the heyday of the Habsburg empire.

W. L. Luetkens

Vienna Philharmonic

A band on its honour

THE BAND'S too loud—(zu laut das Orchester)—an apprehensive Richard Strauss once wrote into an operative score. Needless to say the music was not to be premiered by the Vienna Philharmonic whose silky delicacy has pleased music lovers for decades.

The characteristic "Vienna sound" is the product of much work, discipline and love of music, which have made the Vienna Philharmonic arguably the world's top operatic orchestra with 150 musicians, not including substitutes, compared with the 120-150 players that other opera houses can marshal.

In reality the number of players is even higher according to Robert Jungbluth, secretary-general of the Austrian state theatres including the opera. He says that the orchestra can call upon about 250 players if you take into account retired players and others trained with the Vienna Phil who are available as substitutes.

This enables the orchestra to play a subscription concert with a Brahms symphony at the Musikverein and Verdi's *Tosca* at the opera house on the same evening. Similarly, when it is touring as the Vienna Philharmonic enough musicians are left in Vienna to cope, if not with Wagner's *Ring*, at least with more modest operatic segues.

Several factors explain the orchestra's enduring run in the top league. It has not had a formal director or permanent conductor since its break with Gustav Mahler in 1901. Since then it has been self-governing, its musicians choose conductors, decide on programmes and on who is to play and where. Mr Werner Resel, president of an elected committee of 12 musicians to maintain their high standards—"there is nobody else to blame if things go wrong."

Training and recruitment are tightly controlled by the more senior players. Recruits are

examined by a jury of 28, including members of the committee and leading players of the appropriate instruments. Even before, they have usually been screened by their teachers who are as likely as not to be senior players with the orchestra or players retired from it.

It is a kind of old boy network which in practice leaves little room for women players or foreigners.

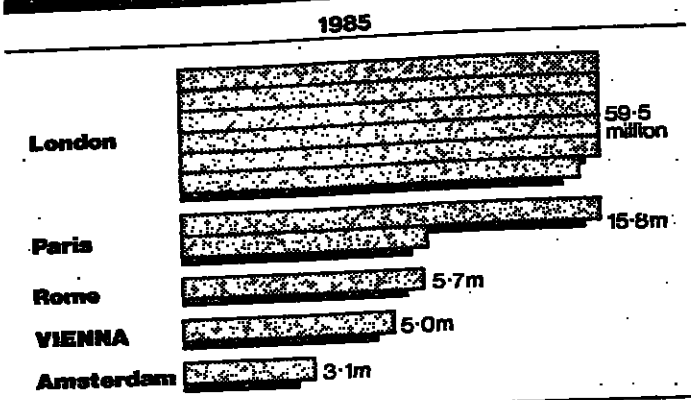
In addition all players are expected to use instruments regarded as appropriate to the "natural sound" prized by the orchestra. There is a specifically "Viennese" horn and a Viennese oboe. Percussion and some string instruments are slightly different from the standard types and require a different technique bringing out the orchestra's individuality. But in the end the secret is discipline and coherence born of playing together on about 300 nights every year.

Patrick Blum

Tourist industry

Boost from Bond

Foreign tourists' overnight stays



Source: Vienna Tourist Bureau

Tourist industry

Available tourist beds (1,000s): 31.5.86-32.9; 31.5.87-34.5; from 1989-38.2 (estimated). Tourist overnight stays (hotels and pensions): 1985-5.1m; 1986-4.8m; thereof in 1986: West Germans-1.0m; Italians-0.6m; Austrians-0.5m; Americans-0.4m. Source: Vienna Tourist Bureau.

especially between October and the end of the year.

That is where the Japanese, who are a growing element among the crocodies of foreigners winding their way through the centre of the city at the heels of a guide, are such a help. They appear to be less worried about wind and weather, mainly because their interest is chiefly in indoor activities such as music and the museums.

Measures to help fill the winter gap include a new annual Mozart musical festival to be held in Advent and an earlier beginning to the ball season which traditionally sets in at the New Year. This year it will fizzle off on November 11 with the "champagne ball" which has the support of the French champagne houses.

Those undaunted by the hotel charges may realise from the prices announced for this event that Vienna is not the cheapest of cities. Tickets of admission will cost Sch 1,000 per head and a table for four will come to another Sch 2,400.

The price for a bottle of the sponsors' champagne is not yet known, but won't be in the special offer range. At this year's Opera Ball, the highlight of the

Vienna season, a glass of native sparkling wine with orange juice came to Sch 170 (almost £8).

But you don't have to go to the white tie and tails balls: during the quiet season you are much more likely to get into the opera at a reasonable price. Hotels may also offer rebates. At the height of the summer season one might think that the capital lives on the business brought by the tourists: the inner city turns into a babel of many tongues. Estimates of the contribution that the tourists make to the gross urban product of Vienna range up to 5 to 6 per cent, though that may be on the high side. A much more modest impression is conveyed by the statistic that on an average day there are some 20,000 tourists present amid a native population of 1.6m.

The fact remains that tourism is a profit centre for Vienna and its shops and services. Last summer according to estimates made by the tourist office, each guest in the two- and one-star lodgings spent an average of Sch 1,445 on every day spent in Vienna. For guests in the four- and five-star class that rose to Sch 2,421. The average stay is 3.6 days.

Small wonder that Dr Helmut Zilk, the mayor, cut a lot of red tape—no mean task in Austria—to help actors, camera crews and all the rest filming a James Bond picture on location in Vienna last autumn. The film is due out this summer and the publicity for the city and some of its sights should reward the mayor for his effort.

W. L. Luetkens

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Business survival kit

Early starts and odd shopping hours

VIENNA IS at once the most easterly end of Western Europe and the most westerly part of Eastern Europe. Slav languages and Hungarian are often heard in the streets besides the predominant German. But fear not: English is quite widely understood if your German is not up to scratch.

But the unsuspecting visitor coming on business should be prepared for some peculiarities. Most offices, banks and ministries open at 8 am sharp in the centre of Vienna and even earlier in the surrounding districts.

Construction workers are on the building sites by 6.30 am and the local bakeries have freshly made bread on sale by then. Many Viennese are on the move by that hour and parking spaces around the Boerse (The Bourse) are full by 7 am. The morning rush hour takes place between 7.30 and 8.30 am.

Hectic though the roads and the driving can be, rushing around is not a typical Viennese trait. It is wise to get your pressing telephone calls out of the way in the morning. Rule out the late afternoons, especially on Thursdays and Fridays as the weekend approaches. Offices generally close at 4 pm, banks at 3.30, except on Thursday when they stay open until 5.30. By early afternoon on Friday it may be hard to reach contacts.

The rules are not uniform. Shops stay open during lunch hours in the Erste Bezirk, the first district which is the very core of Vienna. Elsewhere shops may close for an hour or more.

So there may be time to wander around Vienna. Old central European habits die hard. Everybody is tipped, from the hairdresser and taxi driver to the waiter, delivery man or porter. In the case of taxis, though the fare does include a service



Vienna avant-garde: suburban church at Mauer designed by the sculptor Fritz Wotruba, architect Fritz Gerhard Mayr

charge, it is usual to round up to the nearest multiple of Sch 10 (about 50 pence).

A word of advice: unless you are going to a well-known destination add the number of the district to the street address you are bound for. It helps the driver find his way.

If you are tempted to try public transport you will find it efficient and clean. One ticket, to be bought in advance at tobacconists, will do for a whole journey within Vienna, allowing you to change from tram to underground and bus.

Round up the bill in coffee houses too. At the hairdressers 10 per cent is usual, as at the more up market restaurants. Food is not exceptional (bar-

ring the famous pastries) and may take a bit of getting used to. Viennese cuisine is a mixture of Bohemian, Moravian and Hungarian dishes with paprika, pork and veal common. It can be on the heavy side. But places such as Os Ald und Kalb, tucked away in Backerstrasse not far from Stephansplatz, produces superb Austrian dishes from the province of Styria.

For those who want to try Czech food and the genuine Budweiser beer amid homely local colour, Smutny's on Elisabethstrasse, a few minutes' walk from the state opera, is worth a try. In recent years a number of excellent Italian restaurants have opened as well as a few Chinese.

Be brave and try Austrian

wines, especially the slightly more expensive kind. In spite of the great Austrian wine scandal of two years ago, nobody is actually known to have suffered any damage to health from the adulterated stuff. A German who tried to commit suicide by drinking it is said to have survived hale and hearty if hung over.

There is always the Heurigen to go to in the suburban hills north of the city at Grinzing. These are wine gardens where the patron sells wine from his own vineyards. The wine can be very rough. At times it is best to copy the Austrian custom of taking it g'spritzt or splashed, meaning half wine and half mineral water.

The Heurigen are great

institutions, especially in summer, but it is best to keep away from the centre of Grinzing which is the typical tourist trap. It lacks the genuine Viennese atmosphere and it is hard to park without ending up with a Sch 100 (about £25) parking ticket.

Try farther north or else at Doebbling, the Haselbrunner Hengl in Iglastrasse 10, or at Sleviering zur Agnes in Slevieringerstrasse, where it is quieter and more Viennese.

That is where taxis are useful. They are plentiful. Do not get upset if your driver complains about other road users: driving habits are, to put it mildly, aggressive. So watch your step on pedestrian crossings.

Do not get upset by the eccentric Saturday shopping hours. If you are not deterred by retail prices generally higher than those in London and want to do some last-minute shopping or browsing, get up in time to savour a leisurely breakfast, a marvellous experience. In Vienna with its variety of coffees, a legacy of the Turkish wars, the different kinds of bread and rolls as well as the scores of coffee houses with a choice not only of Austrian but also of international and Eastern European newspapers.

It won't leave much time for shopping since, on Saturday, everything closes at midday or at any rate at 12.30 pm. After that the Viennese escape from the city. Vienna is yours (and the tourists'). Ask the hotel porter to book you seats for a concert, the opera, a restaurant or the theatre. (Yes, there is an English theatre and also a French one.) And ask him also to give you the useful monthly guide to What's on in Vienna.

Judy Dempsey

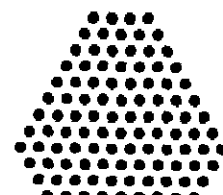
VIENNA. THE HEART OF EUROPE. Waltz step.



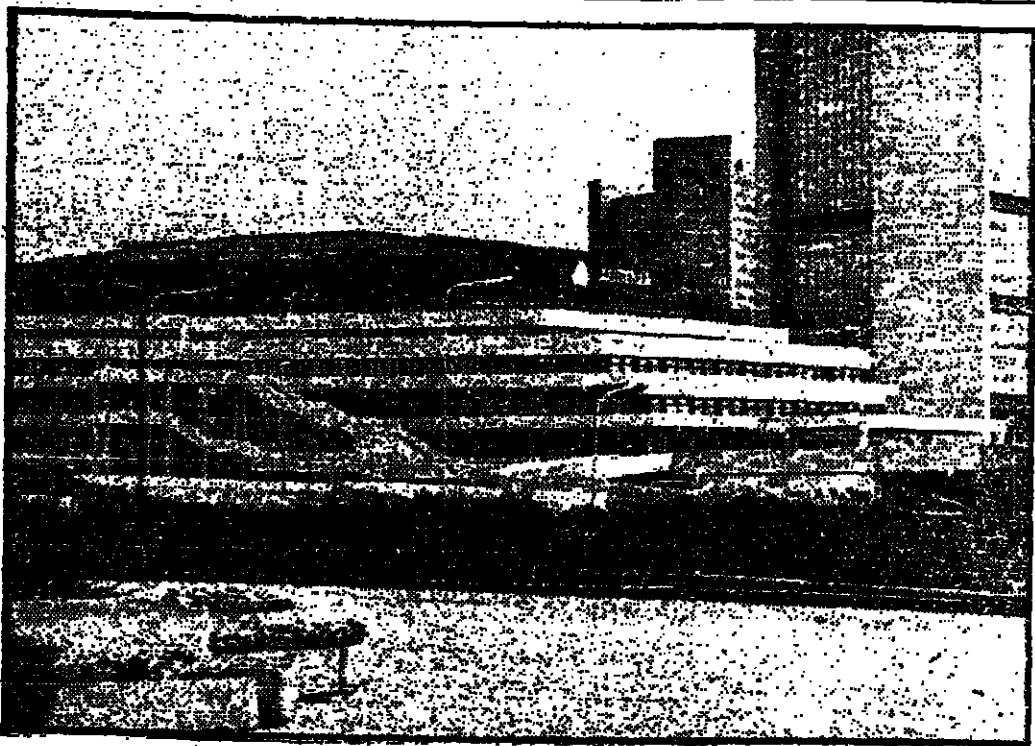
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Patrick Blum



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The new Austria conference centre: no one can make money

Conference centres

An unloved baby

A GALAXY of singers—Plácido Domingo, José Carreras and Agnès Balta—all turned out to grace the opening of the new and - bitterly controversial - Austria Centre Vienna on May 17. The huge and unimaginatively designed conference building, which also has facilities for balls, banquets, concerts and fashion shows, will have to work hard to attract custom.

Like so many things in Austria, the centre continues to be a political bone of contention. It is widely known as the Kreisky Mausoleum because during the 1970s the then socialist Chancellor, Dr Bruno Kreisky, hit on the idea of building a prestige giant on the banks of the Danube, just beside the huge United Nations building.

With financial help from Austrian sources on one side and against the wishes of over 1m Austrians who signed a petition against the idea the centre went ahead. That petition was sponsored by the People's Party on the grounds that the centre was unwanted and too dear, and the party has kept up its complaints even though it has since joined the Socialists in government.

The building has had its teething troubles. It has to compete with another established centre in the old Imperial palace, the Hofburg. For all its elegance and convenient situation, that centre is not big enough. At the

moment both centres are working flat out to attract clients. "We are discounting our prices here in the Austria Centre," an official conceded.

The hope is that the Hofburg, leased from the Government by a group of hoteliers, and the new centre, owned partly by the state, the municipality of Vienna and an ad hoc company will eventually co-operate.

"Running each other into the ground is no way to improve our image abroad," one official at the Austria Centre commented. What does the new centre offer? Not much elegance: the interior is reminiscent of an airport terminal. It lacks atmosphere, has inexplicably narrow stairways and escalators.

The staff of 120 are efficient and intensely loyal to "our baby," as they call it. There is plenty of parking space and the underground reaches the

ground in nine minutes from the very centre of Vienna at Stephansplatz.

The American embassy under construction in Moscow might profit from the anti-bugging precautions. The absence of cables and wiring in the conference rooms makes it hard to plug in from outside.

Such services are expensive. The centre cost more than Sch 3.3bn (about £165m) to build, nearly half of which is owed to lenders in the Middle East. The centre will have to be subsidised by the state to the tune of Sch 60m a year. Annual running costs will amount to that even without another Sch 50m in wages.

"We do not expect to make money. No centre can," an official explained. At the moment they intend to charge the minimum of Sch 148,000 a day for the rent of the large plenary hall. But with the price war between the two Viennese centres rebates are probable.

The hope is that the centre will grow up and develop its own atmosphere. Officials and staff hope that the forthcoming United Nations conference on narcotics which opens in June will make the centre's reputation. But with an Austrian Press and public opinion which does not change overnight firmly opposed to the place, it will be an uphill struggle.

Judy Dempsey

Attractions for the foreigner

Coffee house charms

FROM LATE spring to early autumn the narrow streets and gently illuminated courtyards of Vienna's inner city offer a soothing environment for visitors and residents after a hard day spent sightseeing or at work.

It may not be as jumping with dynamism or nervous energy as London or Paris, but there is a distinctly enjoyable, casual and lazy feeling about taking a beer, or glass of wine sprinkled with fizzy mineral water on a fine evening in a pavement cafe or restaurant in central Vienna.

But regardless of the heat, at 10.00 pm sharp, just when things look at their most convivial, your waiter will politely but firmly invite you to move to a table indoors. Protests will be in vain—in the city it is illegal to serve customers outside after that fatal hour. People are moved inside, chairs are stacked up or tipped against the tables and everyone takes to the streets or goes inside.

The bars, clubs and restaurants get crammed and become sticky, smoky and noisy because they are also required to keep their doors closed so as not to offend local residents who will, at a pinch, call the police if they feel they are being disturbed.

This 10 o'clock curfew is frustrating and there is growing pressure to liberalise the law—many night spots stand to gain a huge amount of custom—but like everything else in Vienna that goes against tradition. Change will take some time.

Outside the city centre things are more relaxed and people can be seen sitting out well into the night although they will not be served and will have to collect their own drinks inside. There are the traditional Viennese Heuriger, the wine taverns on the edge of the city, and the large and rumbustious beer gardens in the Prater park.

The Prater fun fair, tucked at the northern end of the park, must be one of the last original amusement fairs in Europe with its mixture of old-fashioned kiosk and high-tech displays and unlike most fun fairs in Europe is entirely safe. It is also the home of the wheel made famous by Orson Welles in the film The Third Man. The wheel designed by Walter Bassel, a British engineer, celebrates its 90th birthday this year.

It offers the best views of Vienna and along with the fair it

is worth a visit to be followed—by a traditional Stelze (grilled leg of pork) accompanied by excellent Czechoslovak beer at the Schweizerhaus beer garden.

The large Prater park is one of many green areas in and around Vienna. A short trip through the Vienna woods on the city's outskirts will help to restore sinking spirits often caused by wildly fluctuating atmospheric pressure and strong winds known to cause headaches, bad tempers, and depression.

This may account for the Viennese passion for clean air, open spaces and outdoor activities. The traditional and classless Frei Koerper Kultur of bathing, nudism and the sauna has retained its popularity and been given a boost by the growth of the "green" movement.

There are probably more swimming pools, indoors and outdoors, in Vienna with its 1.6m inhabitants than there are in London and Paris put together. Public and private swimming baths are well maintained—some have recently been magnificently restored to their original art nouveau state—clean and generally cheap, although private ones are more expensive.

A new vast and, probably unique for a European capital, car-free open air recreational development on islands on the Danube for swimming, sailing and cycling has been hugely popular.

During the long and cold winters the theatres, coffee houses and numerous wine bars come into their own. In addition to the established theatres, the concert houses and the opera, Vienna offers an increasingly wide choice of alternative entertainment including plays in English, French or Italian and modern musicals.

An English theatre established in 1963 with its own house since 1974 has been highly successful achieving regular full houses. There are daily performances of plays by well-known British and American authors using professional actors brought over from London and New York.

French and Italian plays are also put on at other theatres on a less regular basis. Other theatres offer cabaret, operetta and musicals such as Cats. The city of Vienna authorities are encouraging new artists to effort to enlarge the range of

entertainment for the visitor and the local population which includes many foreigners working for international companies or for the numerous UN agencies based in Vienna.

In the past few years there has been something of a small revolution in Viennese night life. If you did not go to the theatre or the opera there was little other choice, but there is much more on offer now particularly for the younger set.

An especially popular area oddly nicknamed the Bermuda Triangle comprises a couple of steep cobbled streets in which practically every door opens on to a bar, jazz club or restaurant. Cinemas have mushroomed and more films can now be seen in English or in original versions. Foreign newspapers, magazines and books are widely available.

Last but not least there are the coffee houses, each with its own character and faithful customers. It is difficult to overstate the quiet charms and advantages of the Viennese coffee houses. Some years ago many closed down and it was feared that they might die out.

It is difficult to see how they can be profitable since one can happily spend hours over a single cup of coffee reading the world's newspapers without being asked to move. They seem to be prospering all the same and they are still very much at the centre of social life in Vienna.

Many coffee houses in the inner city have been elaborately—some say unfortunately—restored with dazzling displays of renovated or mock Jugendstil. In the more fashionable coffee houses and in some restaurants waiters can huddle about rudely ignoring you, or ask you to pay even before you have had time to finish your cup.

Off the beaten tourist track the pace is slower and more homely. If you are a regular you will be shown wordlessly to "your" table beneath a subdued lamp and a roccoco mirror and brought your regular order—too bad if you fancy a change—without fuss.

You can then spend hours drinking the best coffee in the world, have a quiet game of billiards, or simply enjoy an undisturbed conversation with friends. All of which adds something special and memorable to living in Vienna.

Patrick Blum

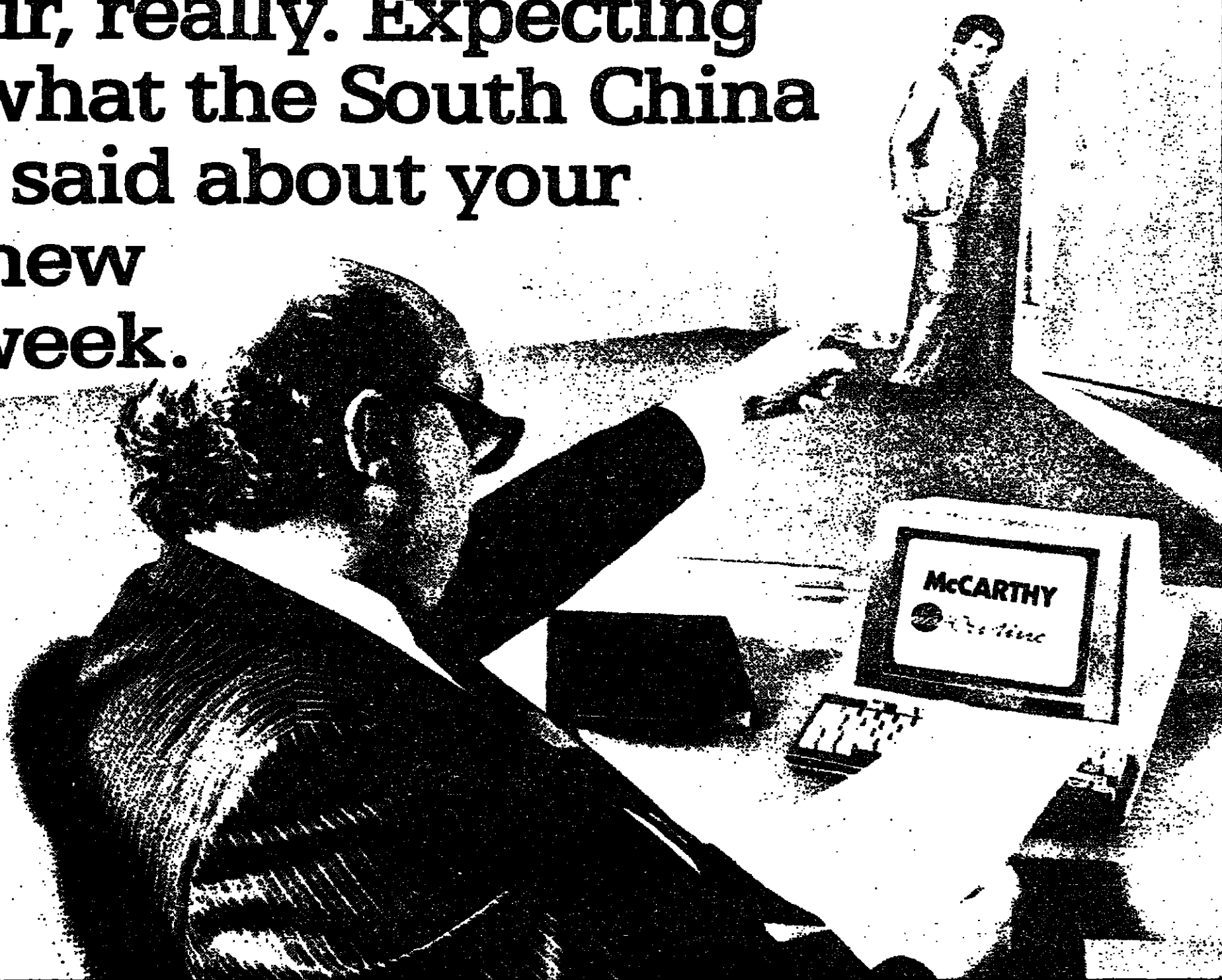
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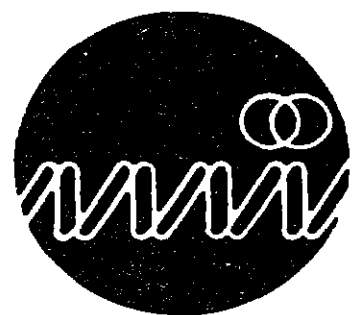
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SECTION IV

FINANCIAL TIMES
SURVEY

A squeeze on defence budgets, delays in some civil projects and difficulties with Western space programmes,

have created some short-term hold-ups. The long-term outlook for manufacturers and airlines remains buoyant with projected world sales of close to \$1,400bn to the end of the century.

Michael Donne reports.

Collaboration to spread costs

THE LONG-TERM outlook for the world's aerospace industry remains buoyant, although the immediate future is clouded by some uncertainties. These include squeezes on defence budgets restricting some military procurement, difficulties with Western space programmes, and delays in launching major new civil projects, such as the new generation of Airbus—although the latter may be close to resolution.

Nevertheless, the world's aerospace industries go to this year's Paris International Air Show aware that between now and the end of this century the total world market for their output remains close to \$1,400bn, including sales to the People's Republic of China but excluding sales to the Soviet Union and other Warsaw Pact nations.

By far the largest part of this vast market is expected to be devoted to military procurement, with about \$500bn for aircraft and about \$300bn for guided weapons.

For the rest, close to \$300bn is likely to be spent on commercial aircraft of all kinds, together with some \$90bn for airport construction and equipment, while more than \$200bn is likely to be spent on spacecraft,

primarily satellites. This will include spending too on manned US Shuttle flights, due to resume next year, and some other major manned space ventures which are expected to emerge before the end of the century such as the European Hermes venture and a start on the US-led manned space station.

Exploitation of this vast aerospace market is already leading to the emergence of several major trends. Although international collaboration is not new to aerospace—it has been around in one form or another for many years—it is now increasing as the costs of major new ventures continue to rise steeply, making them prohibitive for individual companies and even individual nations.

Such collaboration cannot only lead to sharing of costs, but also a widening of the ultimate market, while for the less experienced nations involved it can lead to the swifter and cheaper acquisition of advanced technology than might otherwise have been the case. This collaboration is spreading not only in both airframes, engines and equipment manufacture, but also across the

spectrum of civil and military aircraft, guided weapons and spacecraft.

At the same time, it is no longer confined to the bigger aerospace manufacturers and nations, but is taking hold among the smaller nations which have begun to recognise the benefits of aerospace as a spearhead technology with access to vast markets. The result is that many countries are now either actively expanding such small aerospace industries they may already possess, or initiating such industries, where possible by collaborating with larger nations.

Brazil, for example, which has for years had a successful commuter and regional airliner manufacturing facility, has expanded into military aviation with its Tucano basic trainer, which has been adopted by the UK for the RAF, and is now moving into bigger tactical combat aircraft with the AMX being developed in collaboration with Italy.

Indonesia is building a flourishing industry based on collaboration with Spain in the development of light transport and utility aircraft. Israel has

moved on from its Kfir tactical combat aircraft to the more ambitious Lavi, although that programme has run into financial problems, and its future is in some doubt.

Singapore, although lacking the necessary finance and heavy industrial infrastructure to develop locally-designed aircraft, is playing an increasingly significant role in the production and assembly of avionics and other equipment and components for an increasing number of larger Western aerospace manufacturers, including some in the UK and the US.

China, for long dependent on the Soviet Union for many of its designs and much of its aerospace engineering expertise, is turning increasingly to the West, not only for assistance in the education and training of its aerospace talent but also for work, through the production of components for Western-designed aircraft (such as the British Aerospace BAe 146 regional airliner), and even the assembly under licence of complete Western-designed airliners (US McDonnell Douglas MD-80s), and the manufacture of engines (Rolls-Royce Speys).

Japan, too, although for long the possessor of a substantial industry largely based on the production under licence of US-designed aircraft, is now playing an increasingly significant role in international collaboration on major new commercial airliners, such as the projected Boeing 737 prop-fan 150-seater, and has plans to develop its own advanced tactical fighter aircraft, the FSX, but probably will need technological support from the US industry to achieve that goal.

All of these countries, and others, will be seeking a share of that big world market of \$1,400bn through to the end of the century, and the even bigger markets that most believe lie ahead in the next century. For few in the industry doubt that the expansion now taking place will continue for as far into the future as can be foreseen.

Analysis of the market for the immediate future suggests that the emphasis will remain for some time on military procurement, although cuts in the US defence spending, and a general tightening of defence budgets elsewhere, including the UK, could not only trim some

existing military aircraft and missile programmes but also delay the introduction of some new ones.

Nevertheless, work has already begun on several major new ventures, including the European collaborative fighter aircraft (EFA) involving the UK, West German, Italy and Spain, now awaiting full go-ahead later this year, in competition with the French Dassault Rafale (which is also seeking to establish a European consortium but so far without much success).

Preliminary work is also getting under way on new US ventures such as the Advanced Tactical Fighter (ATF) for the Air Force and the Advanced Tactical Aircraft (ATA) for the Navy.

In the commercial airliner business, manufacturers' forecasts of the world demand through to the end of the century vary between \$225m (Boeing) to \$280bn (McDonnell Douglas) and more than \$400bn (Airbus). These forecasts exclude current outstanding orders of over \$30bn.

Even if the most conservative Boeing estimate is adopted, it still only covers the major air-

craft of about 100 seats upwards. To these must be added the vast market for aircraft of below 100 seats, including all the so-called commuter and regional jet and turbo-propeller airliners now either on offer or planned. Together with business aircraft sales, this could collectively bring the overall market for commercial aircraft up to a level of about \$300bn as a minimum.

If to this is added anticipated spending on new airports and their equipment, together with the refurbishing and modernisation of existing airports, to meet the anticipated doubling of world air traffic by the end of the century, total outlays on commercial aviation and its infrastructure could amount to at least \$400bn, and may well be more.

The commercial aviation scene will be dominated over the next few years by several major developments. One will be the trend among manufacturers to offer new generations of airliners, or improved derivatives of existing aircraft, all embodying extensive advanced technology such as new materials, improved aerodynamic

shapes, and new electronic systems, all aimed at reducing operating costs and improving overall range and payload performances.

Such aircraft include the new Airbus A-320 150-seater, now flying and due to enter service next year, the projected McDonnell Douglas MD-11 tri-jet replacement for the existing long-range DC-10, and the long-range Boeing 747-400 Jumbo jet, all powered by conventional turbo-fan (jet) engines.

Another innovation will be the exploitation of new concepts of propulsion, in particular the "ultra high by-pass" or UHB engines, that will offer substantially improved propulsive efficiency for much reduced fuel consumption (as much as 40 per cent less than current turbo-fan jet engines).

There are various versions of these UHB engines, including the current "prop-fan" engine now under development by General Electric, which has big propeller blades shaped rather like a ship's screw, a radical departure from the conventional propellers as seen today. When this particular form of

Continued on page 16

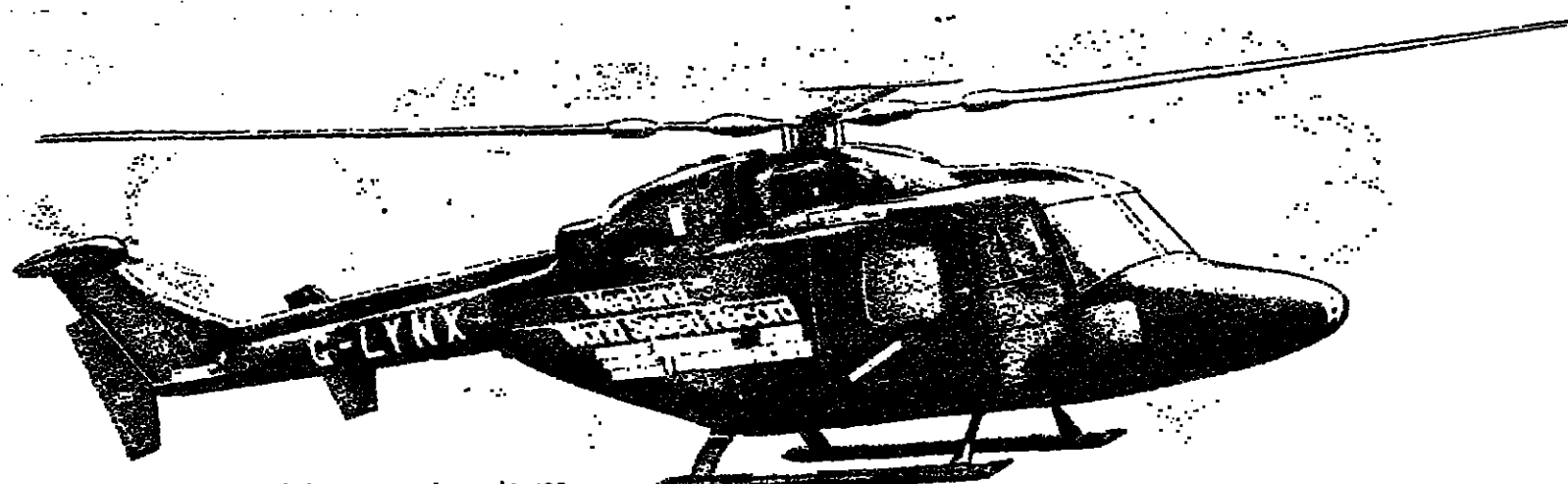


Aerospace

The European Airbus Industrie A-320 Airbus, which recently made its maiden flight, is one of the great success stories of airliner manufacture: close to 450 aircraft were ordered, or options taken, in advance of the first flight. The A-320 enters service next year.

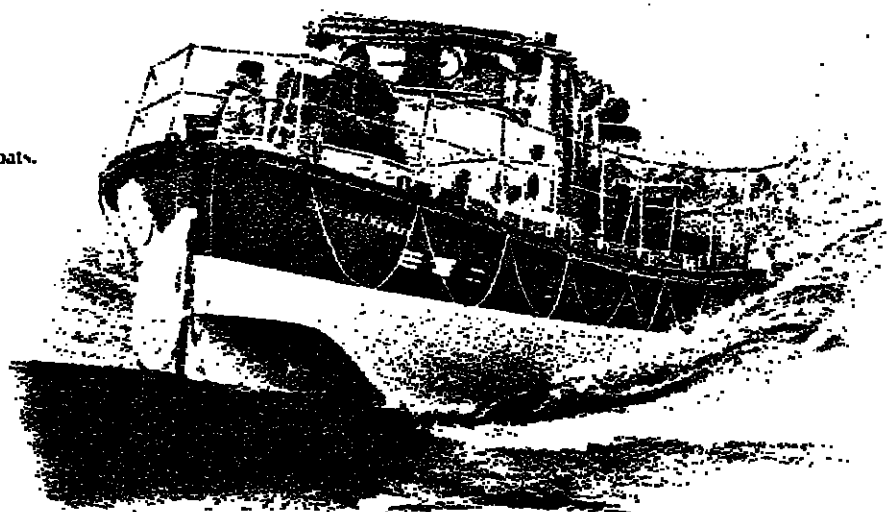
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G-Lynx. Captured the world helicopter speed record in 1986. Built by Westland Helicopters.

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At this year's Paris Airshow, you'll see ample evidence of Westland's traditional strength in aircraft technology.

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(Notably, the G-Lynx which last year captured the world helicopter speed record, and the revolutionary composite blade technology which made this achievement and the new EH101 possible.)

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AEROSPACE 2

The manufacturers are offering many new types and derivatives

Huge market for airliners

THIS YEAR is likely to be one of the most dramatic for a long time for the major world airliner builders, with many types of aircraft, or derivatives of existing types, on offer to the world's airlines. Collectively, these will shape the future pattern of world air transport well into the next century.

At the most recent count, and including new versions of existing airliners, there were no fewer than 14 different new or derivative airliner models planned or already being offered by the major manufacturers, principally Airbus of Western Europe, and Boeing and McDonnell Douglas of the US, but also including British Aerospace and Fokker, who together constitute the five major world jet airliner manufacturers.

All these models cover between them the entire range and payload spectrum, in addition to the existing production lines of short, medium and long-range jets.

All of these ventures, either those actually under development or those currently only planned, are nevertheless the subject of procurement discussions between the airlines and the manufacturers, and indeed in some cases firm orders or letters of intent are already being written for some of these aircraft.

It has been estimated by Boeing, the world's biggest builder of jets, that between now

and the late 1990s, the world's airlines will spend up to about \$220bn on re-equipment, of which some \$150bn will be to meet the growth of world air traffic, and the remainder, about \$70bn, for the replacement of time-expired aircraft. These sums will be in addition to the \$320bn already spent by the world's airlines between 1950 and 1986 on new jet fleets.

The additional spending of \$220bn will cover upwards of 5,000 jet airliners of various kinds, so that by the end of the century, the total world jet fleet is expected to total around 9,500 aircraft.

McDonnell Douglas puts the figure rather higher, at about \$260bn by the end of the century. Airbus Industrie, the European consortium, puts the potential market higher still, at some \$400bn up to the year 2005, covering some 7,270 new aircraft, of which it expects its market share will be about 30 per cent.

What these estimates, varied though they are, indicate clearly is the emergence of a massive market for what may be termed "front line" commercial airliners.

What they do not include, however, are the additional substantial sums that will have to be spent in what is called the "regional" or "commuter" area of aviation, for smaller, shorter-range types of aircraft variously seating from about 20

seats up to about 100, which could add as much as another \$50bn or more to the overall bill, bringing it to close to \$300bn.

The re-equipment tide is already flowing strongly across the entire range and payload spectrum, and many billions of dollars of the overall bill have already been committed in one form or another.

Even so, there is still a long way to go, and many further major orders are known to be in the pipeline for delivery over the next two to three years.

In the long-range jet airliner field, in addition to the existing steady sale of Boeing 747 Jumbo jets of the Series 300 and 300 models, some big orders have already been placed for the bigger, longer-range Series 400, carrying up to 412 passengers over distances of more than 8,000 statute miles. These make possible non-stop operations in both directions between such cities as London and Singapore, Hong Kong, Tokyo and Seoul carrying significant payloads.

Competing with the 747-400 will be the new McDonnell Douglas MD-11 tri-jet, the replacement for the long-running DC-10, capable of carrying more than 400 passengers over distances of 8,000 statute miles, although a proposed extended range model will carry up to 277 passengers over 8,870 statute miles, a 39 per cent increase over the range of the original DC-10 aircraft.

Also competing in the long-range stakes, but not due to enter service until 1992, will be the four-engined A-340 version of the Airbus, now awaiting formal launching, but nevertheless being offered to the airlines in two versions.

The A-340-300 will typically seat 362 passengers over distances of more than 8,000 statute miles, with the A-340-300 carrying a larger payload of 224 passengers over the shorter distance of 8,200 statute miles.

The margin of choice for the airlines in the long-range arena is thus narrow, even though the performance variations may be wide, and already a major battle is being waged for orders between the three major manufacturers involved.

In the medium-range field, for aircraft up to about 4,000 miles range, the struggle is already just as fierce between the same three major builders.

McDonnell Douglas is offering a medium-range version of its MD-11, carrying up to 237 passengers over 4,500 miles, to compete with another new version of the European Airbus, the A-320. The latter will be a twin-engine aircraft, carrying up to 328 passengers over some 5,800 miles, which will be developed in parallel with its companion Airbus, the A-340, using common fuselages, wings and systems so as to keep costs down.

Competing with the 747-400 will be the new McDonnell Douglas MD-11 tri-jet, the replacement for the long-running DC-10, capable of carrying more than 400 passengers over distances of 8,000 statute miles, although a proposed extended range model will carry up to 277 passengers over 8,870 statute miles, a 39 per cent increase over the range of the original DC-10 aircraft.

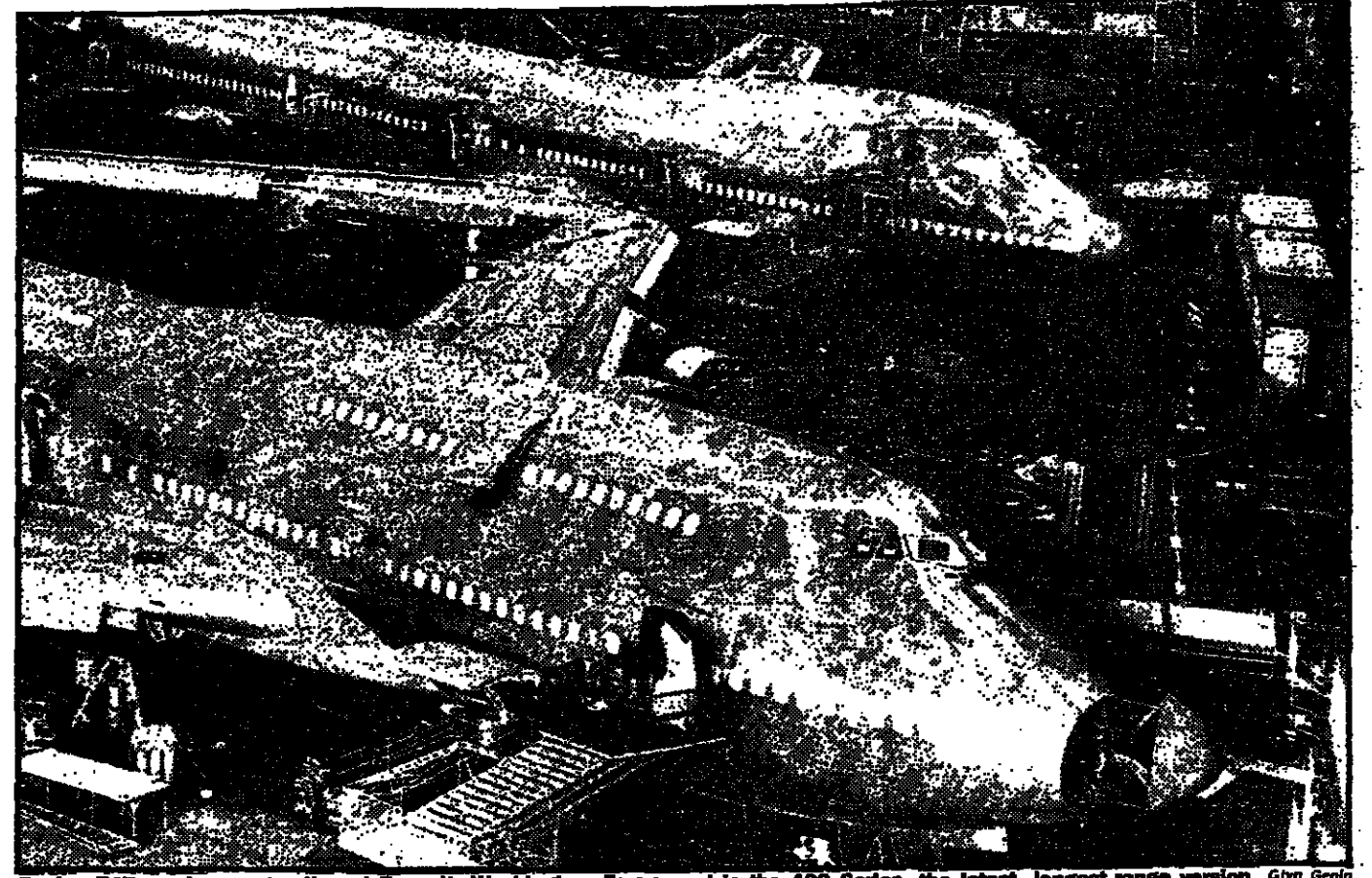
To compete with these aircraft, Boeing plans to develop a new variant of its existing 767 twin-engine medium-range jet, called the Series 400, specifically adapted to the high-density mission and thus intended to ensure that Boeing does not lose orders in this field to either of its rivals.

In the short-to-medium range field, the European Airbus A-320, 150-seater twin-engine jet, is way out ahead of the rest of the field, with deliveries due to begin early next year and orders for close to 450 aircraft already.

Boeing is trying to compete with its projected 737 advanced technology airliner, which it claims will be even better than the A-320 even though much later into service, in 1992.

The big difference with the 737 compared to other airliners is that it will be powered by the revolutionary new prop-fan type of engine, developed by General Electric of the US, with propeller shaped rotors like a ship's screw and mounted at the rear of the fuselage.

This will probably be the



Boeing 747s under construction at Everett, Washington. Foreground is the 400 Series, the latest, longest-range version. (Glyn Genn)

world's first prop-fan airliner to enter service, unless it is pre-empted by a smaller 100-seater, the MD-91X which is being proposed by McDonnell Douglas.

Boeing is now canvassing the airlines on the 737, and if sufficient sales emerge, it will formally launch that aircraft some time in the late summer of this year, for delivery to airlines in 1992. At that time, Boeing claims, it will be the most advanced airliner technologically then flying, and Boeing believes it will kill off the Airbus A-320 in the market, although by then the A-320 will have had an excellent run.

It is in the sector of the market for aircraft of 100-120 seats that an even tougher battle is likely

to be waged for the very short-haul aircraft.

So far, this market has been dominated by the Dutch Fokker 100 aircraft, competing with the British Aerospace 146 regional four-engined jet.

But now Boeing is to introduce a new smaller version of its famous 737, the 737-500, while McDonnell Douglas is planning its MD-88, which although initially intended as a turbo-fan (jet) airliner, may yet be re-engineered with prop-fans, for service from about 1991, with its all-new prop-fan airliner, the 100-seater MD-91X, also planned, with perhaps also a larger 150-seater prop-fan, the MD-92X.

Outside these three main areas of activity, the short-haul regional airliner market is also extremely active, with a wide variety of aircraft from 18 seats upwards (such as the British Aerospace Jetstream 31) through to the 60-plus-seater BAe Advanced Turbo-prop, which is competing in the 60-70-seater market against such types as the new Fokker F-50 turbo-prop and the Franco-Italian Avions de Transport Regional ATR-72 venture.

From this, it can be seen that the overall market for airlines of all kinds is saturated with new types, and it is an almost impossible task for any airline to choose between them, so marginal are the payload-range

performances of the different models in their respective classes.

Nevertheless, what is on offer today is what will be the backbone of the world's airline fleets at the end of the century, and it will probably be a long time before any other new subsonic airliner ventures are proposed.

But there is now the strong possibility that before the end of this century, work will have begun in earnest on a new generation of supersonic airliners, capable of flying faster and farther than the Concorde supersonic airliner.

Michael Donne

Engines

Need for more collaboration

THE WORLD aero-engine industry is currently characterised by a complex pattern of intense competition across the entire spectrum of civilian and military aircraft engine requirements, with companies at the same time being obliged, because of rising development costs, to become increasingly involved in international collaboration.

Both characteristics seem likely not only to remain dominant for many years to come, but also to increase. This is both to cope with costs as they continue to rise, and with the technological complexities of aero-engines which require an intensification of scientific and industrial effort to bring them to satisfactory completion as functioning and saleable power plants.

Although it has been estimated by Rolls-Royce that the world market for commercial aero-engines will amount to some £70bn up to the end of this century, with military engine business amounting over the same period to some £105bn, the competition to win shares of both areas by the major engine builders will be fierce.

Apart from the "big three" — Rolls-Royce, General Electric and Pratt & Whitney — the other major companies include the West German Motoren und Turbinen Union, Snecma and Turbomeca, both of France, Fiat Aviazione of Italy, and Flygprojet of Sweden, all in Western Europe, and Allison Division of General Motors (US), Avco, Pratt & Whitney of Canada and Garrett of the US. There are also other major aero-engine companies in Japan.

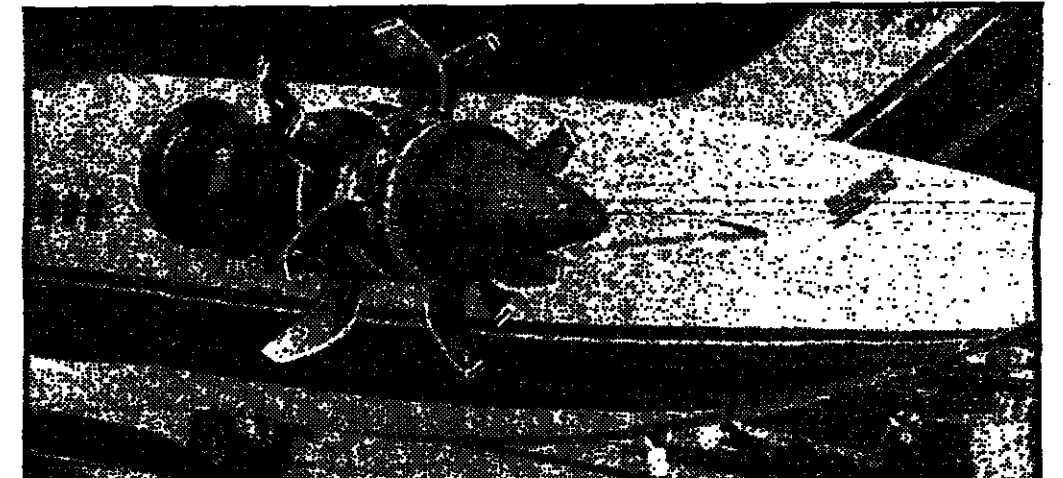
In addition to these, however, there are some specialist companies set up to undertake the research, design, development, production and marketing of individual engines for specific programmes.

These companies have been formed by the bigger companies, and include Turbo-Union (General Electric, MTU and Fiat Aviazione) building the RB-199 engine for the Tornado multi-role combat aircraft; the more recent Eurojet Turbo (Rolls-Royce, MTU, Fiat and Snecma) building the new EJ-200 engine for the European Fighter Aircraft (EFA); and Rolls-Royce Turbomeca, to build the new RTM-322 helicopter engine (as well as the existing Adour fighter and trainer engine).

In the civil field, the most significant and most successful collaborative engine company is CFM International, formed jointly by Snecma of France and General Electric of the US, to build the CFM range of commercial jet engines, which has now sold well over 1,000 engines, for such aircraft as the European Airbus A-320, the Boeing KC-135 tanker-transport, the DC-8 jet airliner, and more recently the Boeing 737-300 and 400 jet airliners.

CFM is also now the sole engine supplier for the new Airbus A-340 long-range airliner. General Electric is also working with Snecma on the new GE-36 prop-fan engine, discussed later.

Another major example of a joint civil engine organisation is the five-nation, seven company consortium called International Aero Engines, comprising Rolls-



Advanced General Electric Unducted Fan (UDF) prop-fan engine fitted to a McDonnell Douglas MD-80 airliner which made its first flight with these engines last month.

Royce, Pratt & Whitney, MTU, Fiat and the three Japanese aero-engine companies.

This was set up specifically to develop the V-2500 medium thrust engine for the European A-320 150-seater Airbus, which is now flying and is due to enter airline service next spring, with the CFM-56 engine. The V-2500 itself will not become available until the following year.

Efforts by the IAE group within recent months to expand its activities into the field of advanced civil engines with an "ultra-high by-pass" Superfan, originally proposed not only for the projected Airbus A-340 four-engined long-range airliner but also for the smaller projected 150-seater Boeing 737 twin-engine airliner, have been dropped, both for technical reasons and the difficulties of meeting the delivery time scales sought by both Boeing and Airbus.

It means that the Airbus A-340 will now be powered by the CFM-56 engine, and the Boeing 737 solely by the General Electric GE-36 prop-fan.

Another consortium, solely US-based, is the PW-Allison Engines, formed between Pratt & Whitney and Allison Division of General Motors, to undertake development of the new "ultra-high by-pass" (UHB) engines, and especially a prop-fan called the 578DX for service from the early 1990s.

In every case, these collaborative ventures have been evolved to deal with specific high-cost advanced engine development programmes for which the rewards in turn have been, or promise to be, substantial.

Turbo-Union, for example, after many years, is still involved in the biggest military engine programme yet seen on this side of the Atlantic in the RB-199 for the Tornado, although it seems likely that in terms of engine numbers and values involved the more recent Eurojet Turbo consortium may go further with the EJ-200 for the European Fighter Aircraft.

Dictating this collaborative approach has been the continuing rise in the development costs of new civil and military engines, programmes, especially as, in turn, they have required substantial advances in technology to achieve the desired advances in performance.

It is estimated that it can now

cost as much as £1bn or even more to develop from scratch a new civil engine, while for some military power plants the cost can be even more because of the particularly severe operating requirements required, generating even tougher demands in terms of advanced technology.

No commercial engine company can afford that kind of cash, and even where governments pick up the bills on military budgets they are just as keen to get value for money and to keep costs down, so that in both areas the concept of international collaboration has many attractions.

Apart from saving cash, these include gaining the benefit of other countries' and companies' technological know-how (especially attractive for the smaller companies who could never acquire it in any other way) and a widening of the eventual markets, leading to longer production runs and thus higher financial rewards.

At the same time, however, the reverse situation can occur. For example, Rolls-Royce, already developing its high-thrust RB-211-524MD jet engine for the Boeing 747 and other big airliners, terminated by mutual agreement its engine development partnership pact with General Electric, which is building the civil CFM-56, because it found the pact unacceptably restrictive on its future ambitions.

One result of that release has already been that Rolls-Royce has begun studies aimed at further developing its 524 engine, currently rated at 58,000 lb thrust in the D4D version, to 65,000 lb thrust and possibly even further if airline market demand justifies it.

The new engine will be designated the RB-211-700, and will bear the development cost on its own budget. The company does not anticipate that the cost will be too high because the technology is already well understood and indeed much of it has already been done on other engines and it is only a matter of pulling those threads together.

Rolls-Royce could not have contemplated such a new development had the original pact with GE remained in being, and it is a measure of its confidence in the long-term strength of the commercial engine market, and of its own opportunities within it, that it is prepared to

incur the risks.

But looking further ahead, the emergence of new types of propulsion systems, such as the ultra-high by-pass engines or UHBs, could involve all the engine companies in heavy additional research and development spending for the mid to late 1990s and so seem likely to result in the emergence of further collaborative ventures.

The UHBs involve moving larger volumes of colder air round the hot parts of an engine, to mix with the hot gas exhaust and thus generate higher propulsive efficiencies for much lower fuel consumption than in current generation turbo-fan jet engines.

As such, they seem likely to be of considerable interest to the airlines, once the preliminary technical difficulties involved in their development are overcome, as they assuredly will be. The question, therefore, is not whether they will come to fruition, but when.

Already several such engines have begun to emerge. They have different names, different technologies and even different methods of installation on airframes, but all are aimed at the same result — substantially cheaper flying.

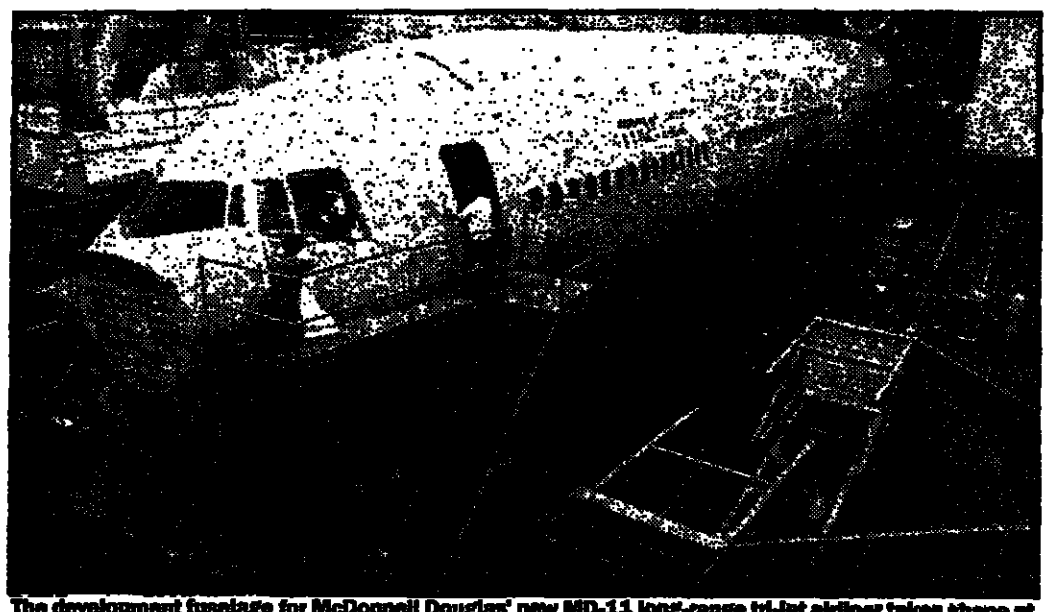
The General Electric/Snecma GE-36 prop-fan is one such, while the Pratt and Whitney/Allison 578DX is yet another. There will be others, for UHBs such as the Contra-fan, that could be suitable for use on Jumbo jets in the later 1990s, and which will be expensive to develop, almost certainly requiring international partnerships.

Thus, the pattern of collaborative development on these new engines is already beginning to emerge. It seems certain that it will go much further in the years immediately ahead, to meet the massive demand for such engines that will emerge.

Pratt & Whitney believes that there is a potential market worldwide for as many as 10,000 of these UHB engines in all types of aircraft, large and small, by the year 2005.

In addition to the collaboration with Allison, Pratt & Whitney says that work on large UHB concepts is being pursued in collaboration with MTU and Fiat, as well as through its stake in International Aero Engines.

Michael Donne



The development fuselage for McDonnell Douglas' new MD-11 long-range tri-jet airliner takes shape at the company's Long Beach, California, factory.

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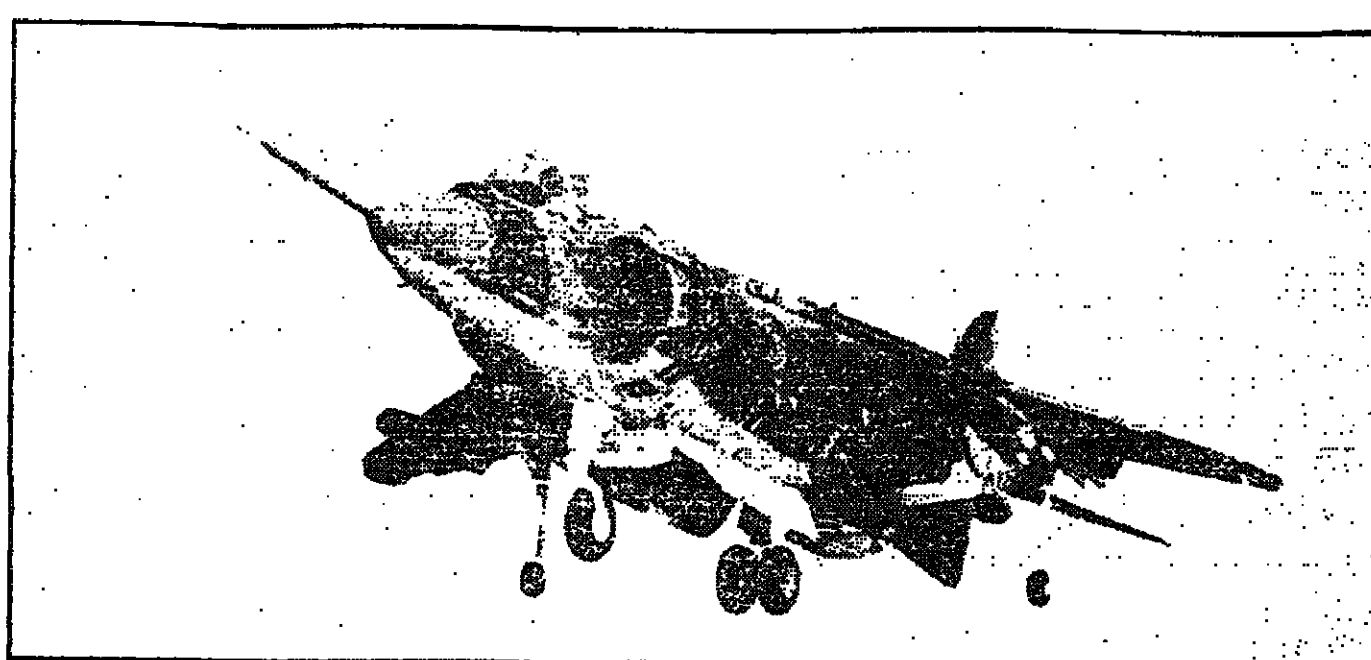
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AEROSPACE 3



Left: The British Aerospace Experimental Aircraft (EAP), with, foreground, the RB-199 engine that powers it. The EAP, which made its maiden flight last year, is the "demonstrator" for the advanced technologies that will be embodied in the forthcoming multi-national European Fighter Aircraft (EFA), on which full-scale development is expected to be announced later this summer.

Right: The Advanced AV-8B Harrier, now in quantity production for both the US Marine Corps and the RAF by McDonnell Douglas and British Aerospace in the largest-ever Anglo-US joint aircraft venture, involving some 400 aircraft.



Military aircraft

High spending continues to launch new programmes

ALTHOUGH pressures on defence budgets in many countries of the Western world are resulting in tougher and more limited procurement decisions for military aircraft, overall spending in this area of aerospace continues to be high, and some major new programmes are in preparation on both sides of the Atlantic.

An analysis of military aircraft trends prepared by British Aerospace indicates that over the last ten years, the total number of combat and jet trainer aircraft in service worldwide, excluding the Warsaw Pact countries and China, has been stable at about 28,000 aircraft, with new aircraft moving in to replace losses and the phasing out of ageing combat aircraft.

This level seems likely to remain steady for the foreseeable future.

A feature has been the move towards increased tactical combat aircraft in air forces outside the US. In the mid-1980s, the US market accounted for nearly half of the world total in this field, but it now represents just under one-third.

The largest growth area has been the Middle East, which has increased its military aircraft inventory as a region by about 50 per cent in the past ten years, although this may now stabilise in the light of limited defence spending following the fall in oil prices.

While the amount spent on military aircraft procurement continues to grow, in real terms, this growth rate is lower than the rate of increase in unit costs of individual aircraft.

This trend is already leading to lower numbers of aircraft acquired, and seems likely to continue, especially with the increasing life expectancies of individual military aircraft types, and the trend towards making individual new types of aircraft perform more roles, to reducing the numbers of types required.

The world market over the next 20 years is estimated to amount to about 23,000 combat and jet trainer aircraft, worth about \$500bn in current values. Out of these, some 9,000 are already either on order or firmly committed or planned, especially in the US.

Additionally, some 250 support aircraft will be required on average each year, including specialist types such as Airborne Early Warning aircraft together with tanker and transports of all sizes.

The most significant new military aircraft programmes now under way on both sides of the Atlantic are primarily aimed at meeting tactical combat needs for the mid to late 1990s.

These programmes include the European Fighter Aircraft (EFA) and its immediate rival,

the French Dassault Rafale, on this side of the Atlantic, and, in the US, the plans for an Advanced Tactical Fighter (ATF) for the US Air Force and an Advanced Tactical Aircraft (ATA) for the US Navy.

In the EFA programme, designed to replace ageing Jaguars, Phantoms and other aircraft in the air forces of the UK, West Germany, Italy and Spain, the go-ahead for full-scale development is expected some time later this summer, having been delayed late last summer.

The project definition of the aircraft and its power-plant has been substantially completed, and the industrial companies involved on the venture—Eurofighter GmbH on the airframe and Eurojet Turbo on the EJ-200 powerplant for the aircraft—are ready to move into full-scale development as soon as government clearances are given.

Already, various consortia of equipment, avionics and other companies are being formed to bid for major items of equipment on the EFA, such as the advanced flying control system and the target acquisition radar, and some of these contracts may be awarded soon.

The EFA joint venture is being conducted by the UK and West Germany with 33 per cent, Italy with 21 per cent and Spain

13 per cent. Overall, the programme calls for the manufacture of eight prototypes and 809 aircraft and the value of the programme has been estimated at more than £12bn (at 1986 prices).

The UK's share seems likely to be in excess of £4bn, for which British Aerospace and Rolls Royce will get work shares broadly in line with the UK's overall share of the programme.

The first prototype is due to fly in July 1990, and full-scale production will begin by 1992, thus overlapping Tornado production which is now running down.

The Experimental Aircraft Programme (or EAP), comprises just one "advanced technology demonstrator" aircraft into which was built much of the airframe and avionics technology for the EFA. It has been on the ground undergoing updating for its forthcoming role as a pre-prototype demonstrator for the EFA programme.

It is now flying again, to help BAe in its own work before the first EFA prototypes become available later this decade, and will appear at the Paris Air Show, where it will once again be vying with the French Dassault Rafale.

In France, four major aerospace companies have collectively formed a new organisation called "ACE International Organisation", comprising the

four companies involved on the French Avions de Combat Européen, for which the Dassault Rafale is the demonstrator aircraft.

The companies involved, all French, are Avions Marcel Dassault-Breguet Aviation, Snecma (the engine company), Thomson-CSF (electronics), and Electrodynamique Serge Dassault, also involved in electronics.

ACE International is a "Groupement d'Interet Economique", and is open to foreign industrial companies interested in the programme and wishing to become members. In its first phase of activity, the new organisation will co-ordinate the work that French and foreign companies will undertake with Government authorities and military staffs, aimed at a common technical definition of the ACE fighter.

The first chairman of the new organisation is Gen Bernard Capillon, chairman of Snecma, which is building the engine for the new fighter.

In the US, both the ATF and ATA programmes are currently at about the same level of development, and there are suggestions in the US that their requirements should be brought closer together to try to save money on a defence budget that is being subjected to a considerable squeeze.

One of the highest priorities being put on the programmes by

the US Defence Department is that they should both incorporate a considerable degree of so-called "stealth technology", the ability to avoid detection by enemy radars or defending aircraft until the last possible moment, which indicates the need for the two programmes to come closer together in the detailed design and development phases.

The US ATF is being developed to replace the McDonnell Douglas F-15 fighter, under competitive contracts involving teams comprising Lockheed, General Dynamics and Boeing Military Airplane on one side and Northrop and McDonnell Douglas on the other.

Each team is building a prototype according to its own design ideas on what the ATF should look like and perform, and the competitive fly off is set for 1989-90, after which the winning team will be given a full-scale development contract.

The US Navy ATA is the one being developed to replace the Grumman A-6. The Navy has also selected two teams—Grumman/Northrop and McDonnell Douglas/General Dynamics, to compete in a similar fashion for the ATA programme.

This competitive fly-off situation is a recent development in US aerospace defence procurement, designed to ensure that

the service involved gets the most advanced aircraft possible, at the lowest possible cost, at a time of considerable defence budget constraints in the US.

Inevitably, it is not popular in the aerospace industry (although it is accepted, for the industry has no choice), for it means that the losing team will have spent much money on its own account without winning any resultant production orders.

It remains to be seen whether, in the event, the system does effectively produce the best possible product, although inevitably the losing side will always insist that its own product was better.

Nevertheless, the fact remains that the state-of-the-art in aerospace technology in the US, as in many other countries, is very much equally balanced between different manufacturers with no one really having a massive lead in technological development over another.

The Western European capability is technologically able to match, if not exceed, that of the US with the latter's advantage being only that of high volume production because of bigger home market demand.

But even this latter benefit is now being overtaken by collaborative ventures in Western Europe that are generating mas-

sive home markets for new military aircraft, such as Tornado and now the EFA.

This explains why the European companies involved on the EFA argue that, despite US claims to the contrary, their aircraft will be very much on a par with the US ATF and ATA. The companies not only dismiss US arguments that the Europeans should join with the US on the development of new tactical aircraft, so as to ensure NATO solidarity, but also point to the fact that the US has tried to win some share of the European ventures in order to get a closer insight into the advanced technology involved.

So far, however, there is no indication of any get-together on any of these advanced US or European tactical fighter concepts.

Among other new developments likely to have a significant impact on world fighter aircraft markets in the years ahead, Japan is discussing with the US the possibility of jointly developing a new-generation fighter aircraft, designated the FSX.

Japan has plans to build up to 100 of such aircraft, but lacks the detailed technical knowhow to work entirely alone, and is thus interested in securing collaboration from major US fighter aircraft producers.

Michael Donne

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AEROSPACE 4

Slack demand from the oil and gas industries has cut civil output

More reliance on military orders

WHILE CIVIL helicopter markets worldwide remain depressed, especially as a result of the slackening demand from the oil and gas support industries, the major helicopter manufacturers have turned increasingly to military customers as a source of work.

Sikorsky, a member of the United Technologies Group and one of the world's biggest manufacturers of helicopters, has lowered its annual ten-year forecast of future world markets for rotary-winged craft by some 4,400 aircraft. It now projects sales of 13,450 aircraft, valued at about \$45bn, over the period to 1996.

Primarily, this lowering of the estimate is a consequence of the more pessimistic outlook for the civil market; the forecast of deliveries to this sector has been lowered by 3,500 aircraft to a total of 4,660.

The civil market shows little sign of recovering from the last recession, with corporate helicopter demand remaining depressed, and recovery of the offshore market, as a consequence of this year's price falls, is likely to be deferred to beyond 1990.

US military demand has also been reduced over the ten-year forecast, to a new total of 2,790 aircraft, due to the stretching out of current programmes and delays in the introduction of new ventures such as the projected LHX (or Light Helicopter International).

The foreign military market outlook reflects a more conservative assessment in the timetable of overseas procurements, at about 6,100 aircraft.

The cash forecast of \$95bn is slightly up, however, despite the projected reduction in unit deliveries. This is because the emphasis has shifted from smaller, lighter-weight and therefore cheaper aircraft to the procurement of larger, heavier and more expensive ones though in smaller numbers.

But though the world's manufacturers are looking more closely than ever at military procurement, even this sector is less lucrative than it used to be, with severe pressures on defence budgets reducing military orders on both sides of the Atlantic.

This is especially true in the UK, where the Ministry of Defence recently announced a long-awaited £300m package of orders designed to help secure the future of Westland Helicopters over the next two years.



The first pre-production Anglo-Italian (Westland-Agusta) EH-101 multi-role helicopter was rolled out at Westland's Yeovil, Somerset, factory in early April, and is due to fly later this summer. It is the first of nine pre-production aircraft, designed to prove the EH-101's performance characteristics.

before the big Anglo-Italian EH-101 multi-role helicopter comes fully into production to build up the company's workload.

This package included a further order for up to 16 Lynx multi-utility aircraft, for amphibious operations in the armed forces, together with an order for 25 of the projected utility transport version of the EH-101 aircraft itself, preceding development of the naval variant of that aircraft, initially intended to kick off the overall programme.

At the same time, the UK announced its withdrawal from the proposed Nato helicopter for the 1990s, the NH-90, on the grounds that the EH-101 would be bigger, and earlier into service, making the NH-90 unnecessary from the UK's viewpoint.

Moreover, the UK view was that there is no money in the current military budget for either research or development of the NH-90.

Although these decisions were castigated by some MPs and others as being too little and too late to stave off redundancies at Westland—the company is now shedding some 2,000 of its labour force over the next two years—they will nevertheless help to ensure that Westland remains a helicopter manufacturer, albeit on an even smaller scale.

Westland's problems, in fact, are similar in some respects to what is happening elsewhere in the helicopter industry.

Current military helicopter programmes are running down, even in the US, and there is concern on both sides of the Atlantic that the helicopter makers will find the situation becoming even tougher before any of the major new programmes planned for the 1990s fully get under way to generate the work and cashflow that the manufacturers need.

So far as the EH-101 itself is concerned, it will be one of the most extensive helicopter programmes yet seen in Europe. It is the most immediate of several international collaborative helicopter programmes envisaged to meet various military requirements for the mid to late 1990s.

The EH-101 Westland-Agusta programme is being conducted through a joint company, EH Industries. The first prototype was rolled out at Westland's Yeovil factory in early April.

Designed as both a replacement for the Sea King anti-submarine warfare helicopter and for a wide range of utility and other duties, and with a commercial transport variant for up to 30 passengers and a range of 500 nautical miles also planned, it is expected eventually that upwards of 800 EH-101 aircraft will be built.

The initial military requirement envisaged 50 EH-101s for the Royal Navy and another 38 for the Italian Navy, has been overtaken by the UK decision to buy up to 25 of the utility transport version to help Westland overcome at least part of its "order gap" in the late 1980s.

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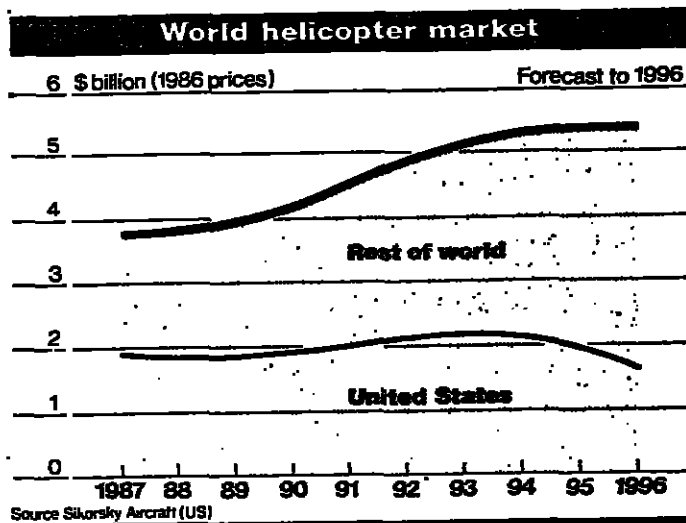
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Source: Sikorsky Aircraft (US)

But those naval requirements are still there, and will be brought on stream as the utility aircraft order is completed.

First flight of the EH-101 is planned for this summer, and nine pre-production aircraft will be built for the long flight-test programme. Costs could be as high as £600m for the research and development programme alone and up to £800m for UK production.

Currently, the research and development costs are borne equally by Italy and the UK, with the UK's share of £300m being borne half by the Ministry of Defence, with Westland itself investing £75m of its own cash and the Department of Trade and Industry contributing the rest in the form of launching aid for the commercial version.

Westland's own forecasts show that out of a total world market for 1,300 aircraft in the 30-seat, 30,000 lbs weight category, EH-101 can expect to secure some 250. For a naval market of 900 aircraft, EH-101 could secure about 300.

In the utility helicopter market for that size of aircraft amounting to some 700 to 800 machines, EH-101 could expect to win some 250, giving total sales of some 800 aircraft up to the end of this century or just into the next.

Beyond the EH-101, plans for other major European collaborative ventures now being refined include a new light attack helicopter based on the Italian Agusta A-129, to be called the Tonto.

This is a joint venture between the UK, Italy, Spain and the Netherlands, but no formal go-ahead for the venture has yet been given by the governments concerned.

The UK decision, however, to pull out of the plan for a NATO helicopter for the 1990s, the so-called NH-90, on the grounds that there is not only no money



The Westland Lynx 3 is the latest version of this multi-role helicopter, developed to fill the requirement for new battlefield and naval helicopters for the late 1980s and early 1990s.

for it in the UK defence budget but also no requirement for it in the light of the EH-101 development is not thought likely to kill that venture off.

Currently, the other partners are considering the situation. The Italians may well follow the UK's line and also opt for the EH-101, in place of NH-90.

That would leave only the French, West Germans and Dutch to consider NH-90, but their combined helicopter requirements for the various roles planned for the NH-90 are such that several hundred aircraft could still be built, as they may well accordingly decide to press ahead with that programme. Decisions are likely before the end of this year.

At the same time, however, the EH-101 partners themselves can be expected to lobby the other countries with a view to seeking from them either orders for the EH-101, or to encourage their subcontract participation in it.

Many of the roles originally envisaged for the NH-90 could be fulfilled just as well by adapting the EH-101, to provide versions equipped for troop transport, search and rescue, electronic warfare, an airborne command and anti-surface warfare, vessel replenishment, and minelaying.

With several hundred EH-101 aircraft already planned, that project is set to become one of the biggest helicopter programmes ever undertaken in Western Europe. Many UK helicopter observers believe that once the EH-101 is flying and demonstrating what it can do, attitudes among other European will change.

Moreover, the EH-101 is already one of the world's most advanced helicopter designs, especially in its rotor technology, and it seems difficult to believe that there could be any further major breakthroughs in the timescale proposed that could provide the NH-90 with a performance sufficiently superior to justify its development in competition with the EH-101.

One of the major long-term helicopter programmes now under way in the US that could have a profound impact on military helicopter markets is the so-called LHX (or Light Helicopter Experimental), a plan for the US Army to buy up to at least 5,000 of a new type of helicopter in two versions, a scout/attack aircraft and a utility vehicle, to replace several existing ageing types.

The US attitude, before some criticism recently for its failure fully to define the required operational capabilities

of the new helicopter, so that full-scale development may begin.

Nevertheless, substantial funding for research and development of the new helicopter has been allocated in current and future defence budgets, amounting to more than \$1bn, so that industrial work on the venture is proceeding.

Two major teams from the US helicopter industry have been formed to bid competitively for the deal—Boeing Vertol and Sikorsky Aircraft, part of the United Technologies group, and McDonnell Douglas Helicopter and Bell Helicopter Textron.

Each team is expected to build up to seven prototypes of the LHX for a competitive fly-off. The winner will then be given a major production contract, but eventually, all the major US helicopter companies are expected to be involved in the venture.

The LHX programme is already driving helicopter technology into new advanced development areas. The Boeing-Sikorsky team, for example, has already flown a "fly-by-light" helicopter using fibre optics for the flight control system as part of what is called the Advanced Digital Optical Control System.

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Missiles

Rise in manufacturing sources

DEVELOPMENTS in guided missiles continue to dominate much of the highest technology in aerospace equipment manufacturing companies.

At the same time, there is evidence that more missiles are emerging from countries with previously undeveloped or undisclosed skills in missile technology. Some of the developing nations are emerging as potentially powerful sources of missiles, at least for their own armed forces.

This could have the effect of closing some previously lucrative overseas markets to traditional Western manufacturers of guided weapons. It could also lead to the Western missile companies seeking to develop new, simpler and cheaper products to compete for sales in world markets.

India recently test launched its first surface-to-air guided missile, the Agni. Mr Arun Singh, the Minister of State for Defence, told Parliament in Delhi recently. Another four Indian-built missiles are under development, the long-range surface-to-air missile Akash; the surface-to-surface Prithvi; the Trishul anti-aircraft missile and the anti-tank guided missile, the Nag.

The Japanese ground self-defence force is to buy launchers for a new medium-range anti-missile developed by Kawasaki and the air self-defence force is to buy launchers for short-range air defence missiles, from Toshiba, in funding arrangements in fiscal 1987.

Israel has developed a new point defence missile, the Barak-1, with the work divided between Rafael, ELTA, a subsidiary of Israel Aircraft Industries, and MBT. Ground tests on the missile started last year and the first trials at sea are expected to take place over the next two years. The missile is expected to enter service with the Israeli Navy in the early 1990s.

Israel also has a land-based version of the Barak-1 and Rafael has formed a partnership with Westinghouse, the US radar company, to try to sell the missile radar combination to the US Defense Department for

the DIVAD air defence contract. The UK is currently considering whether to enter the sevenation short-range anti-radiation missile programme (Sram). This proposed programme is under preliminary evaluation by the UK, the US, West Germany, Canada, Italy, The Netherlands and Belgium.

At the same time, France and the UK have had tentative talks about the possibility of co-operation on the development of cruise and stand-off nuclear armed missiles.

Analysts Frost and Sullivan report that increased demand for missiles and a lull in jet fighter building has brought a change in military programming in Europe where missiles have moved from a fifth of present market value against a third for fighters, to one third missiles and one quarter fighters. In 1986, \$5.1bn in fighters and \$3.5bn in missiles were produced.

In the UK, the Royal Air Force is to increase by 50 per cent the number of British Aerospace Rapier surface-to-air missile fire units deployed to defend RAF bases in the UK. The extra units will be obtained by using Rapier systems currently unused in the repair workshops.

British Aerospace and its recently acquired wholly-owned subsidiary company, Royal Ordnance, have had problems with the RO Nuthatch rocket motor for the BAe Alarm air launched anti-radiation missile. The missile is designed to destroy radar associated with hostile surface-to-air missile batteries and anti-aircraft artillery.

BAe is expected to make a final decision this summer on whether to proceed with the Nuthatch motor for Alarm, or to choose another motor, possibly from MBB of West Germany.

BAe was awarded a £200m fixed price contract for the development and production of the Alarm missile in 1983. The company is expected to produce up to 700 Alarm missiles for the Royal Air Force, but first deliveries of the missiles to the RAF are likely to be late.

The first three firings of the Alarm missile took place early

this year, the first two firings being of non-guided missiles. The third firing involved a fully-guided missile which homed on to a target representing a radar source.

British Aerospace has designed Alarm to be able to loiter after firing from the carrying aircraft, such as the Tornado. The missile climbs from the aircraft to altitude before deploying a parachute which keeps it suspended for several minutes while it searches for radar targets below.

The leading armies of Nato in Europe are to get the multiple launch rocket system, MLRS, under the terms of a multinational contract, signed in May last year by the UK, France, West Germany and Italy. The MLRS is designed to fire salvos of rockets on unguided, ballistic trajectories.

By 1994, the armies should have taken delivery of 342 MLRS launch units, with West Germany taking 200 systems, France 55 systems, Italy 20 systems and the UK 67 systems.

The first deliveries of the system were to have taken place next year, with eight launcher systems each for the West German and British armies, but this timetable appears to have slipped by about a year because of difficulties with worksharing arrangements.

The MLRS contracts are managed by the MLRS European Production Group (EPG), based in West Germany. EPG operates as the prime contractor for the constituent companies in the group.

These are Hunting Engineering in the UK with a 26 per cent share, Diehl of West Germany with a 50 per cent share, Aero Spatiale of France with an 18 per cent share and SNIABPD of Italy with 6 per cent.

In the US, the prime contractor for the US Army is LTV Aerospace and Defense, which formed the MLRS International Corporation with EPG last autumn to hold the exclusive marketing and contracting rights for the MLRS weapon.

The four armies eventually will receive a total of 150,000 M-27 rockets each designed to dispense bomblets and 20,600

AT-2 anti-tank-mine dispensing rockets.

The MLRS weapon ultimately will be fitted with terminally-guided submunitions, (CGW), which will be designed to acquire and attack targets independently after release from the rocket. Hughes of the US, British Aerospace, MBB, Bodensee Geratetechnik and Aero Spatiale are all involved with this programme.

The definition phase of the project was to have been under way this year, but is unlikely to start much before the end of next year. MLRS weapons fitted with the terminally-guided submunitions are expected to enter service in 1994.

In the US, President Reagan has urged Congress to lift its ban on the testing of an anti-satellite weapon against a physical target in space. The anti-satellite weapon is a missile fired from an F-15 fighter aircraft flying at high altitude.

Congress imposed a moratorium on testing the non-nuclear "miniature vehicle" anti-satellite weapon and the White House believes this has undercut the stability and the ability of the US to deter conflicts. The President wants the anti-satellite system to counter Soviet satellites that provide targeting information.

The F-15 anti satellite system has already been tested several times against a point in space target, but only once against a physical target.

The US is considering a guided missile defence programme for the defence of short range, or theatre operations. The idea has its origins in the Strategic Defence Initiative, President Reagan's "Star Wars" missile defence programme.

At the same time, a new consortium has been formed to compete for a US Navy contract for an advanced air-to-air missile to replace the old M-54 Phoenix in the 1980s. Hughes Aircraft and Raytheon have joined forces for the programme, with McDonnell Douglas Astronautics as the principal subcontractor.

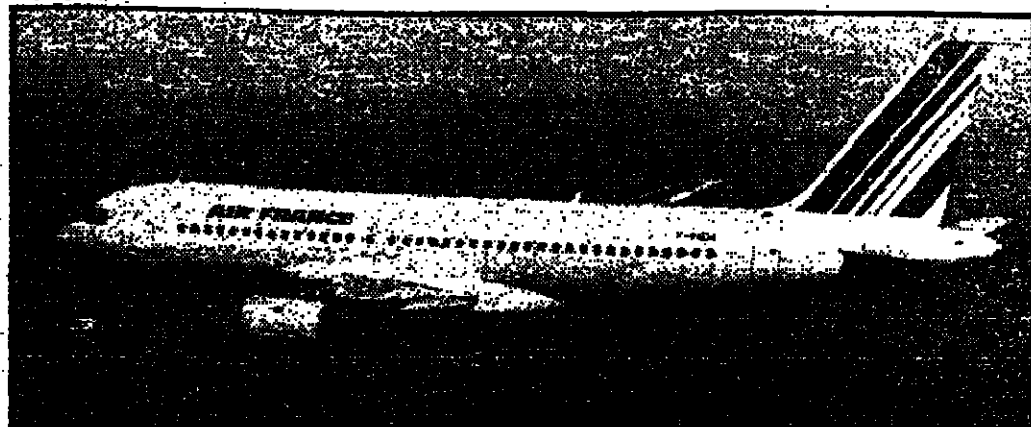
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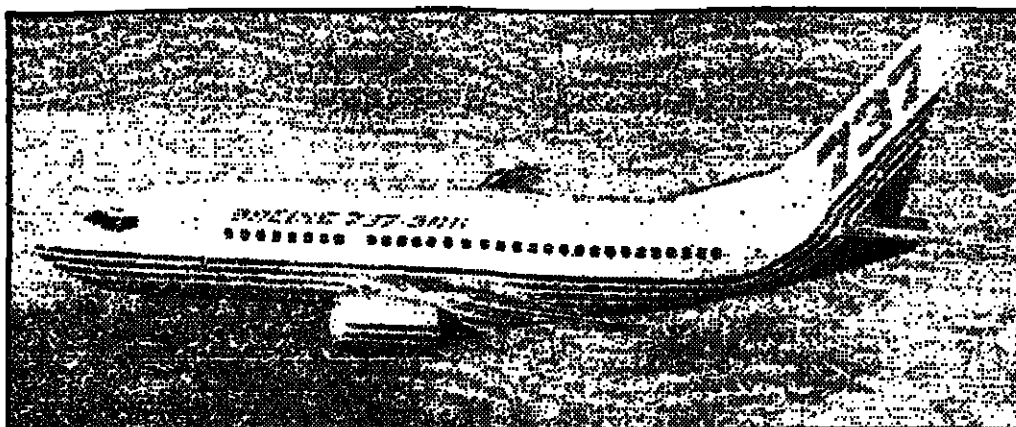
The Starstreak shoulder-launched, high-velocity close air-defence missile, developed by Short Brothers of Belfast, is now in quantity production following a big order for the weapon from the UK Ministry of Defence.



The British Aerospace Sea Wolf is the Western world's only specialist operational anti-ship missile system. Designed to counter anti-ship missiles of all types, Sea Wolf is in operational service with the Royal Navy aboard its Type 22 frigates.



The second European collaborative Airbus A-320 150-seater airliner has now joined the first aircraft in the flight-test programme. The A-320 is due to enter service in spring 1988.



Boeing has now formally launched development of its new version of the best-selling 737 twin-jet, the 737-400, which will rival the Fokker 100 in world markets.

Air transport

Running into losses despite expansion

ALTHOUGH THE world's airlines are enjoying a steady growth in both passenger and cargo traffic, it is expansion substantially without profitability, for while some of the major airlines make profits, many others are incurring losses.

The International Civil Aviation Organisation, the aviation agency of the UN, has estimated that last year no fewer than 800m passengers flew on scheduled international and domestic services worldwide, including the Soviet Union and China, an increase of 6 per cent over the previous year, and that for the immediate future, traffic growth of somewhere between 5 and 7 per cent a year is likely.

Even if the vast mass of Soviet traffic is eliminated from this total, it is clear that throughout the rest of the world, there is still a substantial volume of scheduled traffic, amounting to over 800m passengers.

An analysis by the International Air Transport Association, which lists over 150 of the world's major airlines among its members (although the overall world total is estimated to amount to more than 600 airlines of all sizes and types) shows that although during 1985 those airlines collectively earned operating revenues of \$77.1bn, their expenses amounted to \$74.7bn, yielding an operating profit of \$2.4bn.

But after interest, taxes, subsidies and other items, the net result was only a profit of about \$900m, or only 1.2 per cent of revenues.

For 1986, preliminary results indicate a net loss of \$250m, an increased operating revenue, in a year when traffic rose overall by about 1 per cent for the IATA members, or 5 per cent worldwide, if the non-IATA

members' results are also included, according to figures issued by the International Civil Aviation Organisation.

For 1987, IATA is forecasting a further growth in traffic of 7 per cent, and a positive financial result of several hundred million dollars.

The association points out, however, that so far less than half the year has run, and the eventual result is still finely balanced and could be affected significantly by dollar exchange rate fluctuations, changes in fuel prices, and moreover a continuation of the pressures for cheaper fares which have already substantially cut the industry's revenue yields.

The IATA says that the industry is still a long way short of being able to finance the investment of well over \$200bn that will be needed for fleet renewals by the mid-1990s, involving some 4,000 new aircraft, of which some 1,800 are likely to be replacements for existing ageing fleets.

These figures cover only the member-airlines of the IATA itself. For the total world fleet, the numbers of aircraft and the cost involved are rather higher. IATA adds that for 1986 and 1987 the pre-tax profits of international scheduled services are likely to be only between one and two per cent of revenues "which is some 7 percentage points short of what is estimated to be the minimum average long-term requirement to finance investments and maintain profitability."

The industry's vulnerability to sudden sharp fluctuations in demand was clearly indicated by the situation early in the summer of 1986, when in the light of the US bombing of Libya, the Chernobyl disaster,

and increased fears of terrorism against US citizens, US tourist traffic to Europe fell away sharply.

Although there was subsequently a recovery, the result for the year on the North Atlantic route between all North American and European gateways was a decline of 8.9 per cent to just over 21m total passengers on that route.

Despite that situation, however, the airlines still did not learn the lesson and cut capacity by an appropriate amount. The number of seats on the route decreased by only 1 per cent to just over 33.15m, with the result that the passenger load factor fell by 5.5 points to 63.6 per cent.

To a large extent, this was a reflection of the intense competition that prevails on the North Atlantic route, that is now starting to be mirrored elsewhere, especially in Western Europe as a result of Governmental pressures, especially from the UK, for increased competition and greater liberalisation.

Nobody, least of all in the UK, is seeking US-style deregulation in Western Europe, especially in the light of what many believe to be the near-disastrous results of deregulation now emerging in that country, where many smaller airlines have been forced out of business, and in their place, as a result of mergers, a small handful of "mega-carriers" is emerging.

One result is that standards of service in the US have started to fall, and complaints against poor quality of service on the ground and in the air, congestion and delays, and even lower standards of air transport safety, are increasingly being

heard. In Western Europe, the aim is to achieve deregulation by an evolutionary, not revolutionary, approach, with airlines able to start new services without unnecessary restraint, and free to charge cheaper fares so as to unlock the vast market of millions of passengers who have never yet flown.

Inevitably, many European airlines, supported by their governments, are suspicious of this approach to deregulation. They see what has happened in the US, and do not want to see it happen in Western Europe.

Moreover, they argue that, with the airline industry in its current financial state, a further burst of fares-cutting can only do harm, not good no matter what grand reasons it is proposed.

The UK's view is that the opposite is true, and it points to the success of airlines on the UK-Dutch air routes, following the "open skies" agreement reached between those two countries some time ago, as indicative of the success of such a policy.

But the UK is pressing on, and although progress is slow, there are signs that its persuasion is beginning to pay off. The UK Government remains hopeful that even within the next few months more and more airlines in Western Europe will come to recognise that a more liberal regime can only benefit the civil aviation industry.

Nevertheless, there are some in the European industry who foresee the growth of competition as eventually resulting in the development of US-style "mega-carriers" on this side of the Atlantic, with only a few of the current national flag airlines surviving.

The picture is of the emergence of some form of "Pan-European Air Union," with many of the smaller carriers being gobbled up. Whether this comes to pass remains to be seen, but it is a possibility that is being closely watched by many European air transport observers.

Also there is growing concern in Western Europe at the penetration by US airlines with their big and powerful computer reservations systems, which many fear could dominate Europe by the end of this decade to the exclusion of local national systems.

To combat this, the Association of European Airlines, representing over 20 of the major European carriers, is seeking to establish an "umbrella" type of "global distribution system" that would link all the European airlines' individual systems under one software system so that each could benefit from the wider operational opportunities without prejudicing their individual investments in existing systems.

It is against this background of weak finances and stiffer competition that the airlines have to find the money to pay for the re-equipment of their fleets over the years ahead, both to meet the needs of traffic growth and to replace existing ageing aircraft.

The IATA comments that, up to 1985, the industry has incurred only three years of profitability on operating account, while the net results have been diminishing and are still well below the levels needed to finance future development.

In the light of their current financial difficulties, the airlines are turning increasingly to the concept of leasing, rather

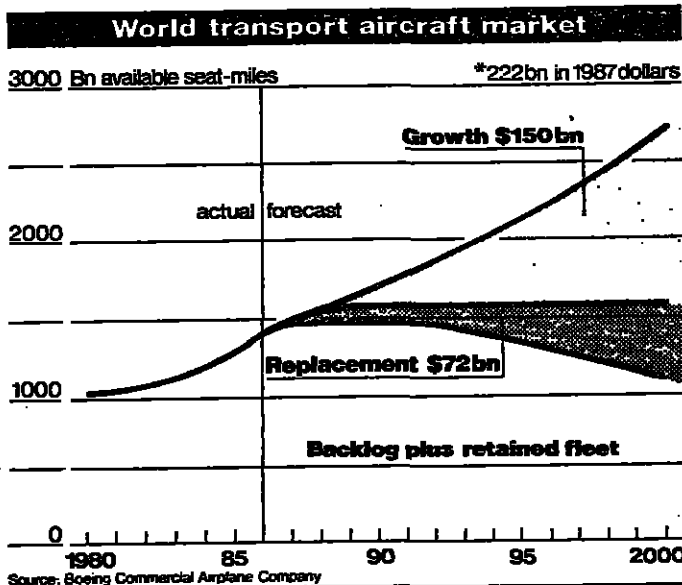
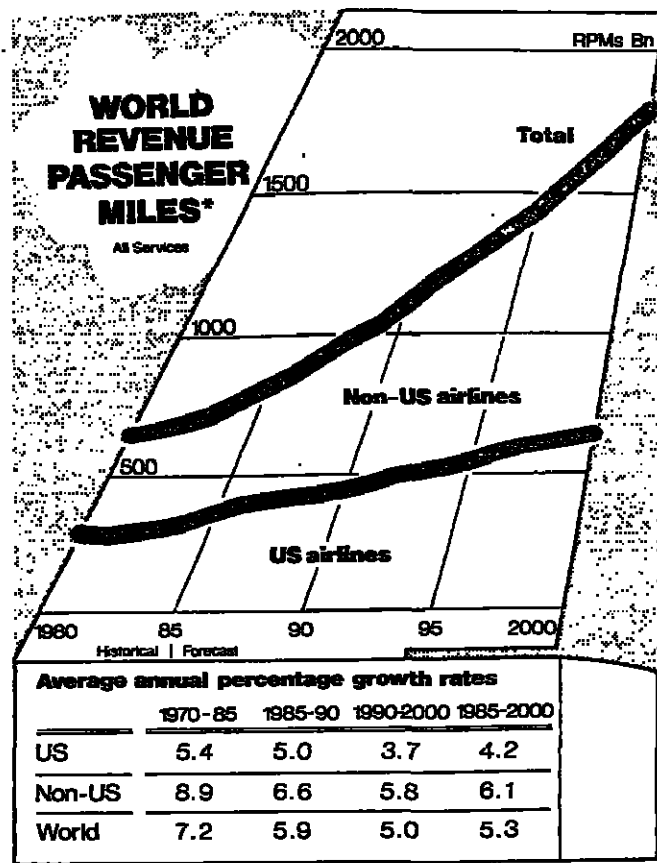
than outright procurement as a means of solving this problem, although the latter is still undertaken where special tax concessions are available to ease the burden of interest debt on balance sheets.

The leasing concept is now becoming the dominant element in sales financing, however. While the concept of leasing itself is of long standing in the aviation business, the character of leasing has been changing: whereas previously the emphasis was on "finance leasing" whereby financing institutions enabled airlines to buy aircraft by instalments ("buy as you fly"), today the concept of "operating leasing" has become more prevalent.

In this system the leasing company buys the aircraft for cash from the manufacturers, and the airline takes it over for a given period of time in return for annual payments. Ownership remains with the leasing company, and the airline earns the cash to make the annual payments while flying the aircraft.

Operating leasing makes it easier for airlines to respond to market requirements, giving them flexibility. If at the end of the period the airline wishes to renew the lease, it can do so. Otherwise, it can return the aircraft to the lessor company, which in turn can either sell it to recover the residual value or lease it on to another operator.

Airlines like operating leases because, at a time of swiftly-changing technology, and of market volatility, they can vary their fleets to meet those changes without difficulty. Lessors like the system because, in the current situation of expanding traffic and newly-emerging airlines, there is little difficulty in finding new customers for



aircraft returned to them. At the same time, the airframe and engine manufacturers have little themselves are becoming increasingly involved in helping their customers find the finance to buy their products, and have also become involved in providing or guaranteeing part of the cash themselves. This is done through separate financing companies which the manufacturers have either set up or in which they participate. Manufacturers have little option but to participate in such activities in view of the fierce competition in the airframe and engine markets. The manufacturer that does not, puts itself at a considerable disadvantage against its competitors.

Michael Donne

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AEROSPACE 6

Advanced building methods and materials are transforming the ways in which aircraft are built and pilots trained to fly them



Fitting lightweight aluminium lithium wing panels to a McDonnell Douglas F-15 Eagle fighter

New materials

Testing times for composites

NEVER CAN a decision on a new material have played a more crucial role in the fortunes of a company than was the case with the carbon fibre fan blade that helped bring Rolls-Royce to bankruptcy in 1971.

The company was unable to develop its RB-211 engine in the timescale it promised and a key aspect of that failure was its decision to use a novel and much lighter material—carbon fibre composites—for the big fan.

It took more than another decade to perfect the light blade and reap the full benefits its designers were hoping in the early 1970s. And when the blade arrived the technology was quite different from the carbon fibre composites, which had failed to resist bird-strike and other engine through ingested engine inlets.

Fittingly enough, however, in the year of the company's triumphant return to the private sector Rolls-Royce wins a Queen's Award for the technological innovation of its latest light-weight, wide chord fan blade.

This blade is a composite of titanium materials. Thin skins of rolled titanium alloy form the two side panels of each blade. These skins are assembled in dies, twisted while in a furnace, then hot formed to give them their characteristic twist.

The panels are then chemically milled to leave a recess for the "filling" they are to sandwich—a honeycomb of titanium that provides the strength at much lower weight than the solid forged titanium alloy blade it supplants. Panels and honeycomb are finally fused into a single structure by automated diffusion bonding.

The engineering and manufacturing team for wide chord fan blades at Derby and Barnoldswick receive the award for the complex manufacturing method they developed. It was evolved originally for the RB-211-535E4 engine for the Boeing

757 and has since been used for blades in the Tay engines for the Gulfstream IV and the Fokker 100, the V2500 engine under development for the Airbus A-320, and the RB-211-524D4D for the Boeing 747-400.

Carbon fibre composites are far from dead in aeroengine design, despite the traumatic experiences of Rolls-Royce. But the wide chord fan blade, once regarded as an ideal application, is no longer seen as an appropriate use of the material.

Carbon fibre can offer the immense tensile strength needed to resist centrifugal forces in the spinning blade, but not the impact strength needed to withstand secondary forces. So the designers reverted to metals and worked at raising their strength-to-weight ratio.

For lightweight containment, however, carbon fibre composites have found a role. They have replaced casings of steel and titanium alloy, for example, in bypass duct assemblies, where a series of three assemblies are currently being made by Rolls-Royce in diameters from 4ft-7ft, and up to two feet long. These use pre-cured composites for the casing fabric, and flanges and bosses are added during manufacture.

The aerospace industry above all understands the central role of advanced materials in meeting its technological objectives for the end of the century and beyond. As the fan blade experience illustrates so vividly, advanced materials imply long and meticulous attention to design, manufacture, assembly and verification, a cycle that can last as long as the development of a new drug in the pharmaceutical industry.

Ceramic turbine blades were talked of in the 1960s when the characteristics of new engineering ceramics such as silicon nitride were becoming apparent. They have not arrived yet, but are still seen as a major step forward for turbine performance

when finally perfected. Composites of high-tensile fibres such as carbon and Kevlar are destined to spread widely through aircraft and aerospace structures, as the industry slowly wins confidence in their unusual mechanical and electrical characteristics, and learns new ways of non-destructively testing materials with properties very different from metals.

An example of a novel test devised recently to assess the integrity of adhesive bonding in composite structures is thermal pulse video thermography, using a short-pulse xenon flash tube to drive a flash-heating of thermal energy through the material.

Among the major new entrants to this field are ICI, which is successfully exploiting its high-performance polymer PEEK (polyether ether ketone) as the matrix for carbon fibre composites capable of resisting temperatures as high as 300 deg C; and British Petroleum, which recently bought the Californian company Hitec to exploit research into advanced composites it had been pursuing at its Sunbury laboratories.

The cost penalty aerospace is prepared to pay for an exceptional strength-to-weight ratio potentially available from such composites is well illustrated by an example drawn from an earth-bound facet of defence. The Royal Armament Research and Development Establishment is seeking to replace its aluminium alloy system of medium-girder bridging used by the British Army. It wants to develop a system based on carbon-fibre composites.

It has set its target at composite structures only one-fifth of the price the aerospace industry is currently willing to pay, for a sacrifice of only 10 per cent in their performance. RAEDS sees it as a ten-year research

and development programme to provide a system by the end of the century.

Nevertheless, there is life left still in aluminium, mainstay of aerospace structures since modern aircraft arrived in the 1930s. The aluminium-lithium family of alloys invented at the Royal Aircraft Establishment, Farnborough, and developed by British Alcan Aluminium is gaining a foothold in the industry. The alloy flew in two advanced aircraft prototypes last year.

Last summer the alloys flew in British Aerospace's Experimental Aircraft Project (EAP), in the form of its control surfaces. And in the US, McDonnell Douglas last year flew its F-15 modified for STOL, capability, using wing panels machined from aluminium-lithium alloy.

It is recognised that Europe is lagging behind Japan and the US in the scale of effort it is devoting to advanced materials generally, and their characterisation and manufacture. According to Battelle, the Columbus, Ohio-based contract research association, the US Government alone invested about \$1.5bn in new materials R and D last year, compared with only about \$100m in West Germany, for example.

Battelle executives say the US Government sees advanced materials as a strategic objective, which implies that its innovation will not be transferred readily to other nations in the interests of protecting its own economy.

The US has coined the phrase "artificially structured materials" to describe many of these innovations: man-made materials that offer properties unavailable in the traditional materials. The phrase embraces composites of both metallic and polymeric matrices, as well as such concepts as the use of surface coatings to produce a dramatically improved performance.

David Fishlock

MANUFACTURING techniques in aerospace have developed at a rapid pace in recent years and enabled aircraft and missile designers to innovate and improve their designs, often with impressive results.

The techniques have changed for several reasons. The advent of new materials, especially composites and advanced forms of metals, processed in new ways to give them new properties, have opened up traditional attitudes to manufacturing methods.

The use of composite materials, for example, offers the prospect of low-labour, automated production. This is well illustrated in the case of production of the wing for the British Aerospace Experimental Aircraft Programme, the EAP, designed to demonstrate a wide range of new technologies.

The EAP was rolled out at BAE's Warton military aircraft factory in the spring last year and is the product of industrial collaboration between 64 main contributing suppliers, from the UK, West Germany and Italy.

The wing for the EAP was made jointly by BAE and Aeritalia. The wing is described as a "co-bonded carbon fibre composite wing structure." This means it has the torsion box spars, the essential strengthening elements, bonded directly to the lower skins.

This method has reduced substantially the need for mechanical fasteners and has dramatically increased the strength of the wing, while at the same time its weight has been reduced compared with a conventional aluminium alloy wing for the same purpose.

BAE says the EAP wing is believed to be the first primary carbon fibre bonded wing structure cleared for flight. It is produced by processing the carbon fibre composite wing, complete with its torsion box spars in an oven heat unit, in one operation.

This has immense implications for productivity, for opening up mass production techni-

Manufacturing techniques

Change towards automation



Assembling a carbon fibre-reinforced plastic fin for the Airbus A320. It weighs 22 per cent less than the old alloy ones.

ques in aerospace, an industry that traditionally has been heavily dependent on skilled manual labour for assembling airframes and wings.

The process for making the carbon fibre wings also lends itself to automation in a simpler way than attempts at automation of, for example, aluminium wing production using automatic riveting machines.

With automation, the production of carbon fibre composite wings can be achieved with greater consistency, greater reproducibility and greater overall efficiency. The EAP is a one-off aircraft, a single-seat air-superiority demonstrator aircraft, but it is widely seen as the forerunner to the multinational Eurofighter, the proposed air superiority fighter for Britain, West Germany, Italy and Spain for the 1990s.

The Eurofighter programme in total is likely to involve several hundred aircraft with the total cost of about £20bn. The aircraft will be expensive in

today's terms, but the emphasis by the designers is on cutting the cost wherever possible.

Automation of the production of sub-assemblies such as the wings will be tackled if it is technically possible and if the cost benefits are suitably large, compared with existing techniques. At present it would appear that a greater degree of automation in the production of the carbon fibre composite parts is a possibility and aerospace companies are likely to explore its potential.

The EAP also uses carbon fibre composites for its foreplanes and some fuselage skin areas.

At Airbus Industrie, in Toulouse, where the Airbus A320 is assembled, there has traditionally been an emphasis on composite materials. In particular, the Airbus A310 airliner has been in production since 1985 with a weight-saving carbon fibre reinforced plastic fin. The A310 is still the only airliner being built with major

composite parts. The Airbus A320 twin-jet 150-seat airliner, which had its maiden flight earlier this year, has a fin and tailplane made entirely of carbon fibre reinforced plastic. These sub-assemblies are lighter and have fewer parts than metal units.

The A320 airliner has other innovative features that make it a landmark in civil airliner design and manufacture. It was the first airliner to be completely designed and created with computer-aided design, CAD.

This extensive use of CAD techniques gives a pointer to the way Airbus airliners may be produced in the future. Computer-aided design is an essential part of computer-aided manufacturing, where the CAD process, designing aircraft on visual display units and using computer power, can be dovetailed into the final manufacturing process.

Already the automobile industry in some countries, including Austin Rover in the UK, uses computer-aided manufacturing techniques in the design and production of cars.

The data from the computer-aided design facilities can be fed directly to the computer-aided manufacturing facilities and parts can be made directly from the visual display unit information.

This is the ultimate way forward for aerospace manufacturing and production techniques. Progress is accelerating as the costs of aircraft production rise and the competitive atmosphere in world aerospace markets increases.

The use of computers for the ultimate production of aircraft, linked with advanced techniques for forming materials, such as super plastic forming and precision reduction of titanium, offers the prospects of high precision and consistent quality. Human error can be reduced and the pace of production line operations increased.

Lynton McLain

Training techniques

Simulators more realistic

TRAINING techniques for civil and military aircraft users are becoming increasingly dependent on the use of electronic, computer-based simulators and, as a result, a multi-company world market has developed.

Simulator technology enables pilots to train for future flights, on their airliners or military combat aircraft without leaving the ground. The benefits include low-cost training, the ability of the airline or air force to keep their aircraft operational—either earning money or available for combat respectively—while simultaneously training air crew in realistic simulations of flying.

The flying conditions it is possible to include in a computer software training programme for simulators are as varied as actual flying conditions. What is more, the makers are able to simulate crisis conditions for the trainee pilot without endangering the lives of crews and valuable aircraft.

Storms, squalls and an endless variety of system failures can be simulated, training the pilot to cope with different kinds of emergencies in a short space of time.

The manufacturers of training simulators produce equipment tailor-made to individual aircraft. Rediffusion Simulation of Crawley, Sussex, which claims to be Europe's largest manufacturer and the only wholly-owned British company producing flight simulators and associated procedural trainers for civil and military aircraft, has made more than 400 simulators since 1960. The equipment covers 75 aircraft types.

Rediffusion Simulation says it currently holds 40 per cent of the commercial flight simulator market around the world. Other leading world manufacturers include CAE of Canada; Singer of the US; Thomson-CSF of France; Alcatel and Merrill of the US, with sales successes in executive jet aircraft and airliners; Curtiss Wright; Flight

Safety International; the Japan Radio Corporation; Mitsubishi and Reflectone.

In the UK, Singer flight simulator equipment is produced at the Singer Link-Miles factory at Lancing, Sussex. Singer's Link Flight Simulation Division was awarded a £14m contract by Boeing last autumn to produce the first flight simulator and associated training equipment for the latest version of the Boeing Jumbo jet, the Boeing 747-400.

The visual system on the simulator will be the micro-processor-based IMAGE IV, to be displayed on the AWARDs first flight simulator and associated training equipment for the latest version of the Boeing Jumbo jet, the Boeing 747-400.

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Singer says the system's increased surface detail results from twice as many surfaces per channel and twice as many texture patterns as have been available in previous systems.

So complex has training by computer simulators and their associated equipment become that simulator manufacturers have devised a training management procedure to handle the increasing complexity. This is known as total training systems management, in which one contractor takes responsibility for the complete training process.

This can include the structure of the training programme; the development and production of means of training, where the individual parts of a training scheme are bought separately by the customer.

Under the total training concept, the customer specifies the end product, the number of trained pilots wanted for future airline or military needs. The

contractor then produces a specification for a comprehensive programme to meet that need.

The US Air Force chose Singer to develop and manage the aircrew training approach for the C-130 Hercules transport, in a \$11.5m initial development and operations contract. The company says the total value of the programme is expected to exceed \$240m.

Mr William D. Turner, the vice-president for Singer's Training Systems group, says: "This award represents a major step in an important emerging trend in high-technology training. Until now, most of the training for pilots and operators of other complex equipment has been conducted on the basis of awarding separate contracts for the various elements of the programme."

Under the contract, Singer's SimuFlite division will conduct the day-to-day training operations; the company's Allen division will look after programme design and course material; the Link Flight Simulation division will modify and update the simulators and related training programmes.

The Hercules contract involves simulator training of Air Force personnel by a private sector contractor. This replaces completely instruction by Air Force officers and staff and saves USAF manpower to be used for other purposes. The Air Force will still carry out the flight training and flight evaluation training.

Under the terms of the agreement between Singer and the US Air Force, Singer, the contractor, guarantees the finished "product" to be a qualified student pilot. If a student fails to meet the criteria, the student is obliged to retrain the student at no additional cost to the Air Force.

The Hercules contract is also the first to include tactical lift and combat tactics training for cargo aircraft and the training programme is expected to

be fully operational in three years.

In the UK, tenders have been requested by the Ministry of Defence to provide the Royal Air Force with five flight simulators to go with the introduction of the RAF's new Tucano basic trainer aircraft.

The MoD wants the tenders to be for simulation systems that offer a performance with a "high degree of realism in the simulation of front cockpit layout and response to control inputs including motion cues." Bids have to be submitted to the MoD by June 18 and stiff competition is expected for the contract from UK companies in the flight simulation field.

Bidders include the Warton division of British Aerospace, CSE Aircraft, Essams, Ferranti Computer Systems, Singer Link-Miles and Systems Designers.

The first simulator is to be delivered 20 months after award of the contract. The simulators will have to have facilities for a student pilot and an instructor.

Rediffusion Simulation was awarded approval by the US Federal Aviation Authority last year for a continuous field of view display. Following this approval, all training can be carried out in Rediffusion simulators, including pilot conversion from dissimilar aircraft types. Rediffusion claims this reduces the cost of training and eliminates training flights around busy airports.

The Rediffusion simulators incorporate six degrees of free motion. The simulators reproduce precisely the flight characteristics of an aircraft and give the trainee pilot a "feel" for the real aircraft.

The company has developed its WIDE II, wide-angle infinitely display equipment, which stretches the horizontal field of view to 200 degrees. This is especially useful for training helicopter pilots as well as some fixed wing aircraft.

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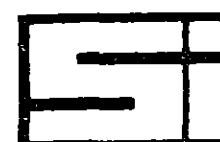
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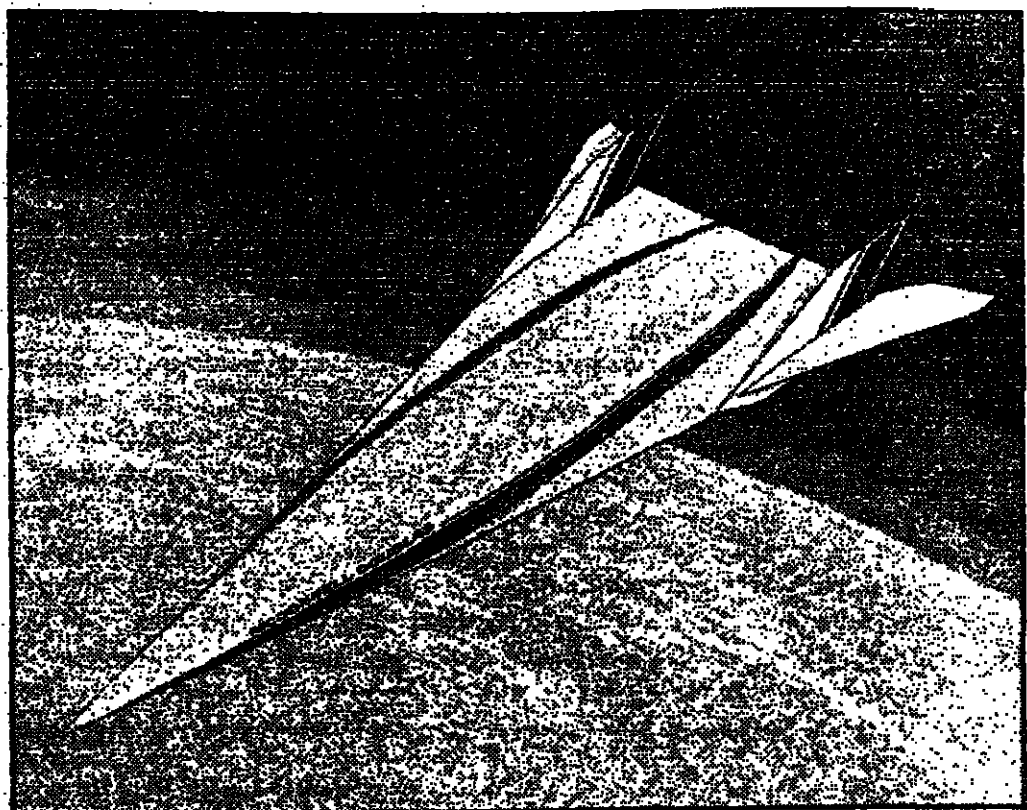
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A McDonnell Douglas artist's concept of an "Aerospace Plane"—a hypersonic transport of the future

Hypersonic flight

Engineers on track

INTEREST ON both sides of the Atlantic in the possibility of developing new generations of supersonic or very high speed (hypersonic) aircraft for military, space or commercial service by the end of this century has been quickening in recent months.

There are now few engineers in either the European or US space industries who doubt that such vehicles are feasible technologically, even if they have to accept that financing them could prove to be the most difficult hurdle to overcome in bringing them to fruition.

In Western Europe, apart from the more ambitious long-term joint Rolls-Royce and British Aerospace ideas for an Earth-to-orbit and return "aerospace plane" or "transatmospheric vehicle" called Hotol, Aerospatiale of France, one of the original partners in the Concorde supersonic airliner, has been studying ideas for a very high-speed or HSCT (Hypersonic Commercial Transport) successor to the Concorde aircraft.

This would be an aircraft capable of flying up to Mach 5, or five times the speed of sound, at about 3,000 mph, which Aerospatiale calls the AGV or Avion a Grande Vitesse.

This, so far, is only a design, although some wind tunnel work has been undertaken. Theoretically, it would fly at heights up to about 100,000 ft, carry up to 200 passengers (twice Concorde's capacity) and have a range of some 7,500 nautical miles. Whether this AGV is ever built remains to be seen, but it does reflect the thinking in Europe about this type of aircraft, and indicates a determination not to be left behind in the overall field of very high speed aircraft research, whether for commercial or military-cum-space roles, or both.

For virtually all the major US aerospace airframe and engine manufacturers now also have teams in one way or another researching into such ventures, mostly with cash from the US Department of Defence and National Aeronautics and Space Administration under what is called the National Aerospace Plane project, or NASP—a long-term idea for a very high speed earth-to-orbit-and-return vehicle, designed initially for military and space research applications.

The \$3.3bn NASP, or X-30, research programme, now being conducted for the DoD and NASA by the US Air Force, is primarily intended to lead initially into a military or space hypersonic craft.

It is regarded as the largest research aircraft project ever undertaken by the US, and is the first hypersonic aircraft programme to be initiated after many years of hiatus, following cancellation of the original US supersonic airliner programme in the mid-1960s.

Virtually every major US aerospace airframe and engine and equipment company is involved in the work in one way or another. The current objective is to build two X-30 research aircraft, that might fly as early as 1993.

Much of the current X-30 research is classified, but the initial object appears to be to develop a vehicle, fuelled with liquid hydrogen and carrying only two pilots, to fly on an experimental basis and be capable of sustained cruising at speeds exceeding five times that of sound in the upper atmosphere but also capable of massive acceleration to 25 times the speed of sound for orbital flight.

The craft would be able to use normal runways, climb to high altitude, and then soar into orbit, returning to land like a normal aircraft after its mission. Reports from the US indicate that significant progress is already being made in such key areas as advanced materials technology, in engine design, including the clarification of "scramjet" or supersonic/hypersonic advanced propulsion techniques, and in fuel technology, including the use of liquid hydrogen.

The next stage in the venture will be for the X-30 Joint Programme Office of the US Air Force at Wright-Patterson Air Force Base, Ohio, to draw all the threads together this summer in readiness for a major "concept review," to be conducted later in the year on both the airframe and the engine for the projected ultimate X-30 flying research vehicles.

Upon that will depend the next move into selecting specific hardware designers and manufacturers for the two projected research vehicles, the contracts for which will be awarded in 1989.

Current ideas for the X-30 may still therefore undergo some considerable changes before any flying vehicle emerges in the 1990s. In the meantime, costs are being carefully scrutinised by the General Accounting Office to ensure that the burden is not too heavy for the US to bear.

These procedures may appear to be lengthy and cumbersome, but they are probably the best, and indeed, the only way in which any country can move into such an extensive and expensive programme as the X-30 itself will eventually prove to be.

What many engineers in the US aerospace industry are hoping, however, is that by conducting this type of very high-speed research on the back of a military-cum-space budget, ideas will crystallise in the interim for the less ambitious, but still considerably far-reaching concept of a commercial "hypersonic commercial transport" or HSCT.

Indeed, many in the US aerospace industry believe that much of the initial research into the ultimate X-30 transatmospheric vehicle "or" "aerospace plane" could in fact be beneficially employed in either the interim, or even the parallel, development of some form of hypersonic airliner that might be able to fly at speeds up to about five times that of sound (Mach 5 or about 3,000 miles an hour), carrying some 300-400 passengers at 100,000 ft over distances of several thousand miles.

In that way, it is argued, there would be a commercial return for the high cost of what would otherwise be solely a military-cum-space "transatmospheric vehicle" or "aerospace plane" yielding no commercial return at all.

Various ideas for such a hypersonic commercial transport were aired some time ago at a special High-Speed Commercial Transport symposium at the Battelle Institute in Columbus, Ohio.

It was made clear not only that much of the technology required for such an aircraft either existed or was feasible to achieve, given the research and development funds to do it, but also that some airlines, such as Northwest Airlines and Federal Express, were already interested in its possible eventual development.

Such an aircraft would have to use different types of fuel from today's aviation kerosene, such as methane gas, or liquid hydrogen and liquid oxygen, but it is believed that this could also be used as a coolant to offset the heat generated by high-speed flight on the aircraft's fuselage and wing-leading edges.

Such an HSCT would be designed to use the existing airport runways at major international airports, but there would be a problem in storing the substantial quantities of methane or other exotic fuels, that such an aircraft would require.

Among the various technologies that would still need to be studied before such an HSCT could become feasible, would be the variable cycle engine, capable of powering the aircraft both in the denser atmosphere at take-off and in the much thinner atmosphere at the very high altitudes or the low-orbital mode adopted for long-distance cruising, before coming down again into the denser atmosphere for landing.

Other areas requiring research would be into such devices as laminar flow control (improving the airflows over the

wings and fuselages to reduce drag; new high strength-to-weight materials to resist high-temperatures but producible at very low cost, including the development of ceramics and carbon-carbon; new fuselage and wing shapes to improve the aerodynamics of the vehicle and reduce sonic boom effects; and improved high-temperature seals and fluids.

The range capability would be such as to link the US West Coast with the increasingly politically and economically important regions of Australasia, South East Asia and the Far East in little more than three hours.

This would effectively become the so-called "Orient Express" type of aircraft that has been much mooted in the US in recent months. Such a concept is undeniably attractive, especially to aerospace manufacturers always looking for new ventures to exercise their designers' minds and fill their factories with work, but it would be costly, running into many billions of dollars.

It is significant that virtually all of the studies into such developments so far have addressed the technological aspects, but have been less forthcoming on the financing.

But because of the very high costs involved in both the hypersonic commercial vehicle and the military-space aircraft, many believe that some form of international collaboration, either between governments or between industries, or both, have also have to be considered if such ventures are ever to come to fruition.

But however such ventures are financed, either collaboratively or not, and although some considerable advances have already been made, there are still many technological challenges to be overcome. It is stressed that safety, reliability and maintainability are paramount issues still to be addressed—especially in the light of the difficulties encountered in the space programme with last year's loss of the Challenger Shuttle vehicle.

At the same time, it is stressed that no matter what the operating costs might be of a military-space hypersonic vehicle, the costs for an HSCT itself must be realistic, if airlines are going to buy it and passengers fly in it.

The possibilities of some form of international collaboration in these advanced high-speed aircraft are enhanced by the fact that, outside the US, there are some major rival concepts that may well come to fruition in the years ahead.

To waste scarce financial, engineering and other resources on competitive ventures on both sides of the Atlantic seems to many to be unnecessary, not to say even foolish. One major rival project is British Aerospace's own Hotol (horizontal take-off and landing) vehicle which is now the subject of a preliminary £3m study by British Aerospace and Rolls-Royce in conjunction with the Department of Trade and Industry.

Hotol, if ever developed, would be able to use runways like a conventional aircraft, but would also be capable of achieving low-earth orbits. Initially intended to be unmanned, a manned version is also under consideration.

The secret of Hotol is claimed to be the revolutionary Swallow engine, designated RB-545 and still classified secret, which would combine the functions of an air-breathing engine for low-altitude operations and a rocket motor for high-altitude and orbital activities.

Such an engine uses atmospheric oxygen for take-off and low altitude work like a normal aircraft, but uses liquid oxygen for orbital work.

The Hotol studies have yet to be completed, as indeed have all the studies in the US. Neither Hotol nor the US X-30 ventures are just around the corner. All that is happening is that engineers and scientists are turning their creative energies to solving the initial problems they see ahead in the development of such vehicles.

Michael Donne

Intense development has brought significant new concepts of aviation close to reality

A far-reaching impact on design

SINCE THE dawn of powered flying, aeronautical engineers worldwide have constantly sought better ways of achieving their goal of transporting people and machines through the air in safety and comfort at ever-increasing speeds.

As a result, some dramatic developments have resulted—including the helicopter (or rotary-winged aircraft) itself, vertical take-off fighters, and even the supersonic airliner.

Over the past few years, the US aerospace industry in particular has been deeply engrossed in research and development aimed at widening the scope of aeronautical achievement, with the result that some significantly new concepts of aviation have emerged.

Probably the two most significant have been the so-called "tilt rotor," developed by Boeing Vertol, a division of the Boeing group, in conjunction with Bell Helicopter Textron, and the "X-wing," developed by the Sikorsky Division of United Technologies.

Both concepts effectively demonstrate new techniques of flying that could have a far-reaching impact in the year ahead on both civil and military aircraft design.

The "tilt rotor," or the V-22 Osprey to give it the official US Defence Department name, is a concept in which engines with propellers are used in the vertical mode to lift the aircraft off the ground like a helicopter, and then tilted while in flight to perform like normal propeller-engines for conventional forward propulsion. In normal flight the aircraft can reach altitudes of about 30,000 ft and speeds exceeding 300 mph.

The V-22 Osprey is now under development, under a \$1.7bn full-scale contract from the US Navy, which is managing the programme for more than 1,000 aircraft to be produced to serve the needs of all four US armed

services—Air Force, Army, Navy and Marine Corps.

Under a contract, Bell-Boeing will build and flight-test six V-22 prototypes, and also construct three aircraft for static, fatigue and ground tests, with first flight set for June 1988, and deliveries starting in late 1991.

In all, 1,213 aircraft will be needed, with an initial requirement by the Marine Corps to build 552 Ospreys to replace its fleet of ageing Boeing CH-46 helicopters. The Navy itself plans to buy 350 Osprey variants, to replace Lockheed Viking 6-3 anti-submarine aircraft, while the Air Force wants 80 Ospreys, and the Army wants at least 230 aircraft.

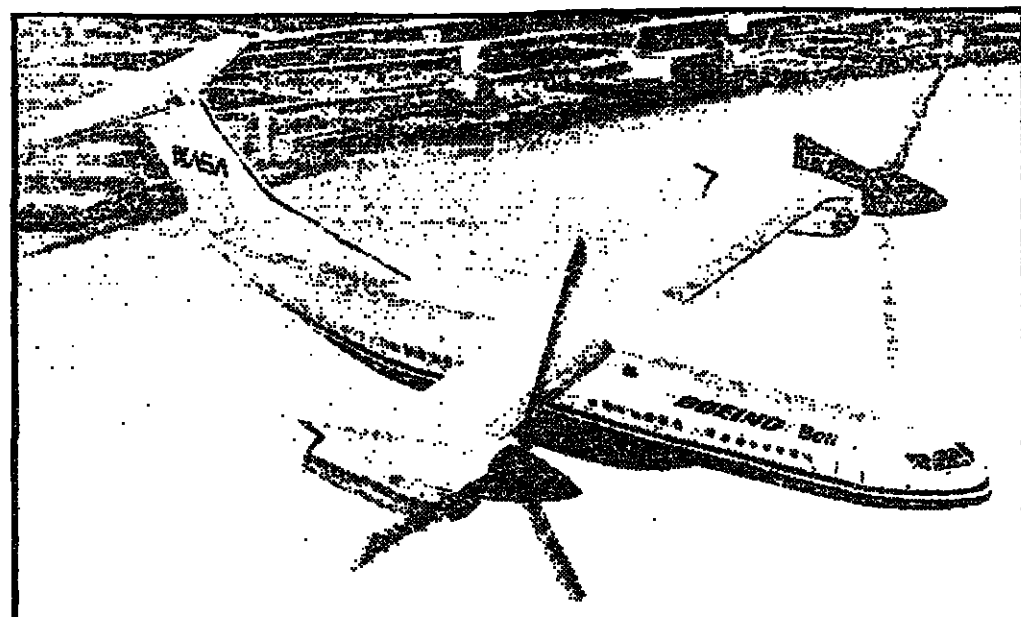
Bell-Boeing claims that the V-22 offers the US armed forces many uses which include: tactical air control support, combat search and rescue, emergency evacuation, logistics support and medical evacuation, assault missions, and special warfare support, as well as anti-submarine warfare, anti-ship warfare, amphibious assault support, and airborne early warning missions.

First flight of the production Osprey is currently set for June 1988, with the first fleet deliveries set for December 1991.

In addition, the possibility of civil versions of the Osprey are not being discounted. Bell-Boeing says that among the more immediate commercial applications of tilt-rotor aircraft are inter-city communications, especially from congested city centres, as well as long-range off-shore support of oil and gas exploration and production.

Bell-Boeing says that the US currently holds the lead in tilt-rotor technology, and that civil variants of the Osprey could be certificated and made available for delivery by 1995.

Currently, Bell-Boeing is participating in a joint study with the National Aeronautics and



An artist's impression of how the joint Boeing-Bell V-22 Osprey tilt-rotor aircraft, now under development, will look

Space Administration, the Federal Aviation Administration and the Department of Defence to explore future commercial applications of tilt-rotor aircraft.

Among the configurations being considered is a 75-seat aircraft, designated the CTR-7500, a 19-seat transport, the CTR-1900, and a 31-seat transport, the CTR-32A.

The present schedule calls for this study to be completed in June 1987, and its results to be presented in July.

The other major development now under way in the US is the Sikorsky X-wing Rotor Systems Research Aircraft, which also employs a variant of helicopter technology.

This is a joint venture by Sikorsky, the Defence Advanced

Research Projects Agency and the National Aeronautics and Space Administration, designed

to provide an efficient combination of the vertical lift and hover performance of conventional helicopters with the high cruise speed of fixed-wing aircraft. The X-wing aircraft takes off and lands vertically, using a large helicopter-style rotor with four big blades. Once in the air and moving forward at about 230 miles an hour, the rotor is stopped in mid-flight, and stabilised in one position to start functioning like a normal fixed-wing aeroplane, enabling the aircraft to continue flying at speeds up to 800 miles an hour.

The aircraft is powered by two General Electric turbo-shaft engines for the rotor system, and two more GE turbo-fan jet engines to provide forward thrust.

The first X-wing, mounted on a DARPA/NASA Rotor Systems Research Aircraft, has already been rolled out by Sikorsky, and

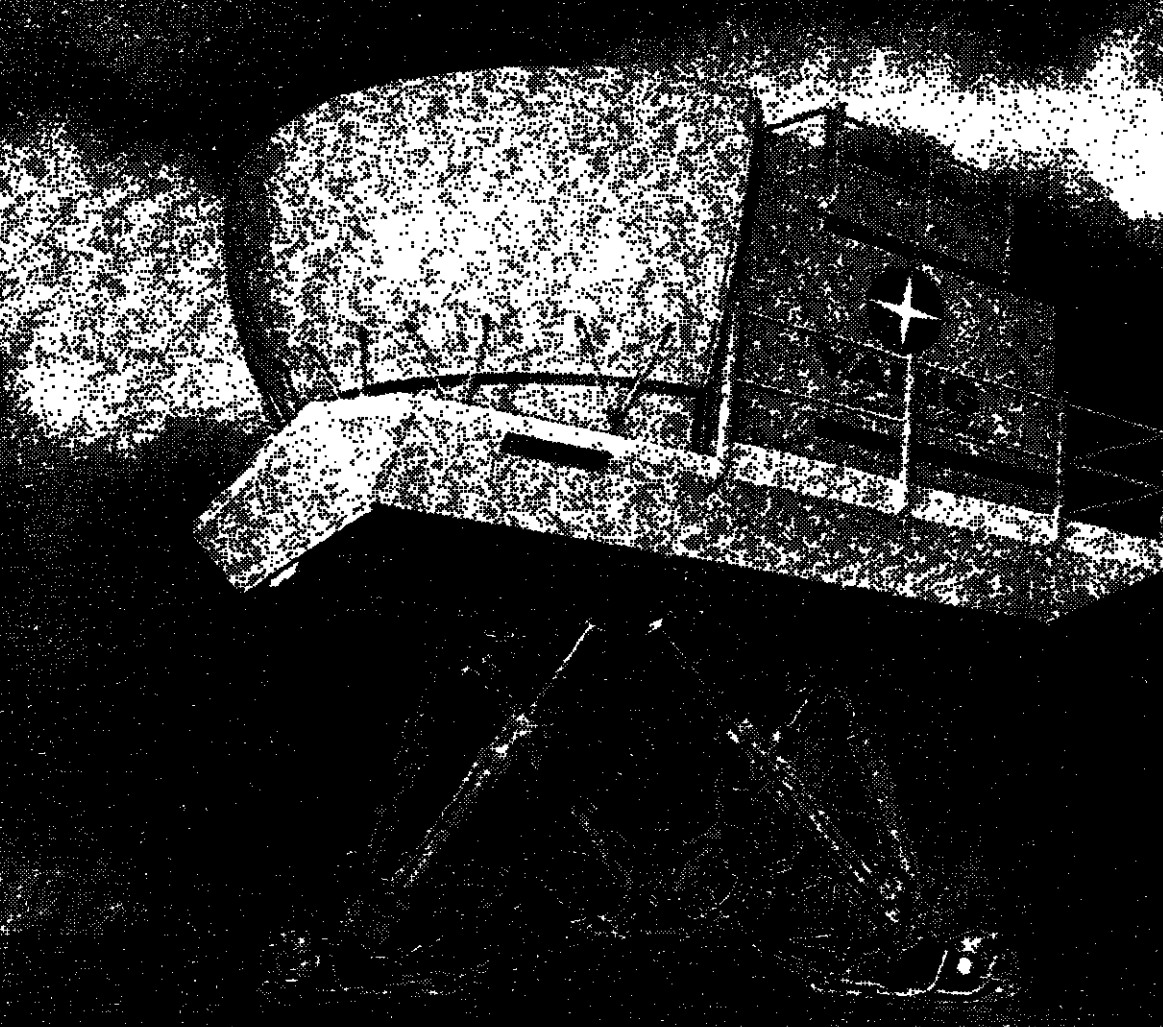
a major flight test programme is now getting under way, at Edwards Air Force base, California.

Successful performance of the aircraft throughout the flight tests could lead to the development of a full-scale X-wing demonstrator aircraft by 1990.

Sikorsky claims that the X-wing is a concept that finally offers the possibility of meeting the promise of a truly convertible aircraft, with the ability to lift big loads from congested city centres and then to fly like a conventional aircraft at high speeds over considerable distances.

Although initially the X-wing, like the tilt-rotor, is being developed with military applications in mind, the longer-term use of both developments in the commercial arena is likely to attract increasing attention. Michael Donne

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Varig's new Boeing 747-300 flight simulator is about to enter service right on schedule.

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From
Falcon asks

Falcon 900. The widebody business jet

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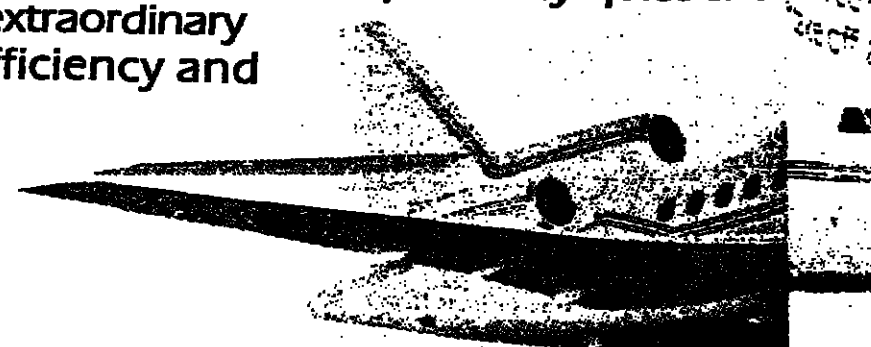
For quietness, it has a structural acoustical shell, faced with Kevlar composite material for strength, and covered with a layer of

acoustic foam for soundproofing.

One of the reasons of the unique comfort and utility of its widebody, full-head-height interior, is the careful study and application of ergonomics to the design of the FALCON 900.

The result is optimum space, and an impressively quiet environment, creating an extraordinary sensation of utmost efficiency and serene elegance.

A corporate jet must



Business takes

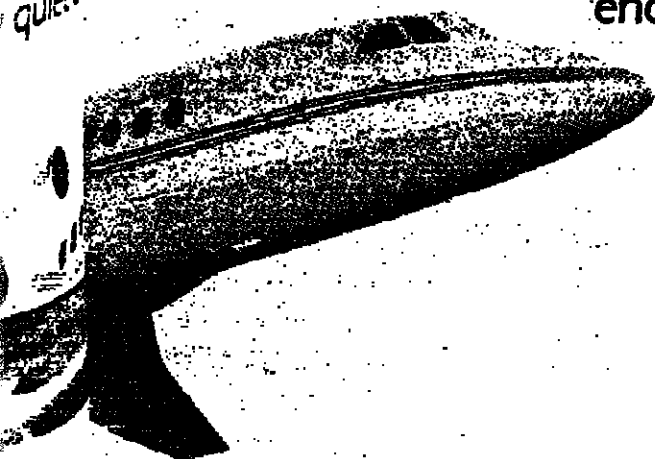
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AEROSPACE 10

Canada

Start-up for helicopters

CANADA's aerospace industry has digested two privatisations and the start-up of a helicopter manufacturing sector. Its technological base is broadening with greater defence activity and it is keeping its international lead in small turbines. Canadair in Montreal is now a subsidiary of Bombardier Inc, the diversified transport products group, and is being revitalised under leadership of Donald Lowe, a former General Motors manager and the man who led Pratt & Whitney Canada back to health and sanity after a disastrous strike in the 1970s.

Canadair is now confident that it can sell a minimum of 15 top-of-the-line Challenger executive jets a year, or pass break-even, and it is working hard to develop a stretched version for commuter needs. It is improving and re-engineering its long-living waterbomber aircraft—used for fighting forest fires—developing specialised defence systems in co-operation with the French and West Germans and hoping to find a market for them also in the US.

Canadair has long experience as subcontractor for airframe parts for the three major US aerospace groups, and it is determined to build this activity further, possibly with the European Airbus Consortium if its North American sales continue to prosper.

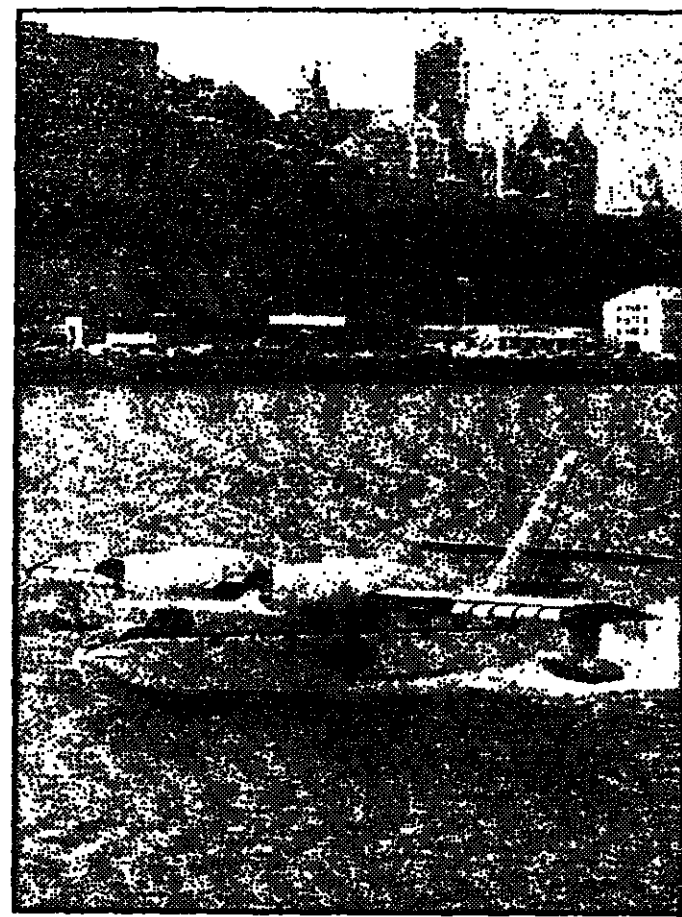
The company built more than 2,000 fighter aircraft under licence from American manufacturers for several European nations after the Second World War, and partly because of this experience was awarded a long-term maintenance management contract for Canadian Armed Forces F-18 fighters.

Canadair is profitable once again, without the drag from the Challenger development costs absorbed three years ago by the Federal Government. Employment is running at the highest level in more than a decade, the fighter maintenance contract will bring it into complex systems technology and advanced composites, and Bombardier's ownership role has been favourably accepted now throughout the industry.

The Government of Prime Minister Brian Mulroney launched into privatisation with the sale of De Havilland Canada in Toronto to Boeing of Seattle. This deal came up against anguished cries from Canadian nationalists, particularly because a rival bid from a Canadian consortium was refused.

But Boeing has reorganised DHC from top to bottom, increased employment and won major new orders for the company's advanced turboprop commuter aircraft. The twin-engined DASH-8 is doing especially well and DHC is working on a stretched version to carry more than 50 passengers.

The controversial Bell Textron Helicopter (Canada) plant near Montreal has begun making two series of commercial light helicopters while continuing development work on the Canadian-engineered twin-400



The Canadair CL-215T "water bomber" for fighting forest fires, seen scooping up water from the St. Lawrence River at Quebec.

model and on the 440 which will use advanced composites on a large scale. About C\$250m has been invested in the plant.

A small helicopter plant near Toronto, owned by West German-controlled MBB Aerospace Canada, has moved into production based mainly on a C\$25m Federal Government contract.

Both these plants depend partly on recovery in the oil and gas industry. But Canadair is linked with Aerospaiale of France in offering a version of the Super Puma for the C\$25m replacement programme for the Coast Guard's ageing Sea Kings, while Bell (Canada) would assemble and test the new Anglo-Canadian EH-101 if that is chosen over the Super Puma.

Pratt & Whitney Canada, the small turbine producer, has shifted production of its fanjet line to Toronto and expanded its research operation into that

area. It needed more room at the Montreal plant for the highly-successful turboprop engines for general aviation and commuter aircraft.

PWC is developing a completely new engine for helicopters and searching out new niches in the market. A start has been made on a project to build turboprops in China. PWC maintains Canada's second-largest private-sector research and development operation, in Montreal and Toronto, and for years has worked successfully with Canadian component manufacturers to develop domestic sourcing and raise the level of technology.

Based partly on a pioneering Canadian General Electric airfoils plant at Bromont, near Montreal, PWC is gradually adopting computer-integrated manufacturing for its principal

engine assembly and testing operations. In Montreal especially, this will mean a complete restructuring of the manufacturing function over the next ten years. PWC has built a parts plant at Halifax, Nova Scotia, to get practical experience.

The Canadian aerospace industry is divided roughly 50-50 between Quebec and the Maritimes provinces and the West. Each region of the country wants to have a share of airframe, component and specialised materials activity. Bristol Aerospace in Winnipeg desperately wanted the F-18 maintenance management contract. It got a similar contract for the older fighter equipment instead, and will probably be awarded other work.

Avionics, component, hydraulic equipment, overhaul and component companies, often subsidiaries of international companies, are spread across the country, while the systems manufacturers are mostly in Ontario. However Canada has developed a large-scale systems management capability in Parametric Electronics, a subsidiary of Unisys, of New York. It is assembling and testing the central computerised control system for Canada's new patrol frigates, and will be applying this experience to air traffic control and other commercial systems.

The industry comprises well over 100 companies grouped together in the Aerospace Industries Association of Canada, and volume this year will be about C\$5bn, with about 80 per cent of output going to export markets.

Employment in all AIAC member-companies is nearing 60,000 as the industry leaves the 1982-83 recession well behind. About 32 per cent of its output is defence-related, though the industry's leaders regret Canada's reluctance to join in the Star Wars research programme.

Canadian aerospace has made great strides in the past few years, but several major issues remain. The US is far and away the largest customer and products move freely over the border without tariff. However the industry is pressing the Federal Government in the current free trade negotiations to achieve a reduction in US non-tariff barriers and to get defence production sharing on a more consistent footing. Canada could also benefit from a joint institution for settling trade disputes.

The industry wants more long-term participation in international aerospace developments, whether US or European-based, a greater role in the current free trade negotiations to achieve a reduction in US non-tariff barriers and to get defence production sharing on a more consistent footing. Canada could also benefit from a joint institution for settling trade disputes.

In the next two years, gross sales volume is expected to rise a total 12-14 per cent and reach about C\$7bn by 1990. "We're very bullish about the outlook," says Mr K. E. Lewis, AIAC's president.

Robert Gibbins

The US

Military purchases peak

THE US AEROSPACE industry has reached a turning point. For this is the year when America's greatest peacetime defence build-up is due to pass its peak, at least as regards the military aircraft purchases which for long have been the biggest hardware component of the Pentagon budget.

From 1987 year onwards, US military aircraft sales are expected to start on a slow but steady decline from this year's record level of \$39bn which has been budgeted. A gentle fall of one or two per cent a year is likely to take military aircraft sales to about \$37bn by the end of the decade, while new accounting guidelines and cost control measures designed to curb the federal budget deficit will start to cut into the defence contractors' profits.

The smaller civilian end of the aircraft industry, meanwhile, is going from strength to strength as airlines around the world enjoy rapid traffic growth and the new generation of high-technology passenger aircraft moves towards full production. US commercial airframe, engine and parts manufacturers expect sales this year to exceed \$11bn and to grow by further 5 per cent or so a year to around \$12.5bn by 1990.

However, the fastest growth rates in the aerospace industry will be enjoyed not in the airframe and engine sectors, but among the avionics and space equipment suppliers.

This year looks like marking the first time that avionics sales including both military and civilian installations, overtake the spending on military aircraft, with spending on avionics coming to about \$40bn, and expanding at upwards of 8 per cent annually in the last three years, avionics is set to remain highly prosperous, even if sales of military aircraft begin to slow.

With defence thinking emphasising electronic warfare and electronic support, the avionics sector should continue over the next two years at about 4 per cent annually, despite weaker

demand for instruments and flight displays.

The space and satellite sector is doing even better this year, registering growth of nearly 20 per cent to more than \$24bn. The most important reason has been the surge of spending by the Space Defense Initiative organisation which is responsible for President Reagan's Star Wars project. The second—traditionally ironic—boost to the space sector has come from the Challenger Space Shuttle disaster.

The National Aeronautics and Space Administration will be spending more than \$10bn annually in the next few years to rebuild its shuttles by mid-1988 and then press ahead with the space station programme. Meanwhile, the Defense Department's space budget, currently \$15bn annually, is likely to go on rising, unless and until the next president brings about some dramatic reordering of defence priorities.

For the aerospace sector as a whole, then, the general picture is one of enormous activity and prosperity, albeit with a few pockets of gloom. But the major civilian airframe manufacturers' good fortunes are not shared by the very much smaller companies in general aviation. With the squeeze on overheads through-out American business showing no signs of abating, and the cost of liability insurance pushing the price of private flying further out of the reach of middle-class Americans, general aviation sales this year are forecast at only \$1bn. In 1988, unit deliveries fell to their lowest point since the Second World War.

But even outside the hard-hit general aviation sector, US aerospace companies are hardly in euphoric mood—an observation which applies with even greater force to their shareholders. In the year to May, the aerospace companies' share prices, as measured by the Aviation Week and space technology index, increased by only 10.2 per cent compared

with a rise of 18.8 per cent in the Standard and Poors 500.

On the basis of price-earnings ratios, the aerospace sector sells at a discount of 45 per cent to the market, an astonishingly bearish figure for an industry enjoying an extraordinary rate of technological progress, a generally well regarded management, and a market impervious to foreign competition.

For the big airframe manufacturers which dominate the industry, it may prove hard to rekindle investors' enthusiasm. As Ms Judith Council, aerospace analyst at Goldman Sachs, noted recently:

"The aerospace industry is mature with little or no earnings growth over the next five years. Mature industry stocks become attractive at these levels as investors begin to focus on cashflow instead of earnings."

Unfortunately, aerospace companies are not attractive on a narrow basis. Because of factors unique to military contractors, the aerospace industry should experience deteriorating cashflow over the next three years.

Being, with its dominance of the worldwide civil aircraft industry and with its enormous backlog of orders, is something of a special case. Despite the sometimes vicious competition between Airbus and McDonnell Douglas, which will be partly responsible for the downturn in earnings this year already predicted by Boeing's management, the longer-term prospects look "extraordinary," according to Mr Paul Nisbet, aerospace analyst at Prudential Bache.

While many analysts might disagree with Mr Nisbet's forecast of a near doubling of Boeing's earnings in 1988, this is the one aerospace company which figures most prominently in the stockbrokers' buy recommendations.

But for the six predominantly military prime contractors—McDonnell Douglas, Rockwell, General Dynamics, Lockheed, Grumman and Northrop—the outlook is more uncertain. Ear-

nings prospects are unexciting because the Pentagon's buying binge is past its peak and several perennial money-spinners such as the B-1B bomber, Grumman's F-14 Tomcat and A-6 naval fighters and Lockheed's C-5 cargo aircraft, start running out of orders.

Indeed, there have been widespread predictions that several of the military prime contractors may be forced back to subcontracting by the early 1990s, once the Pentagon makes up its mind on three massive military development competitions which are now in progress.

The Navy's advanced tactical aircraft, with an expected cost of \$40bn, is being developed by a Grumman/Northrop consortium in competition with McDonnell/General Dynamics. The competition for the Air Force's Advanced Tactical Fighter (ATF), valued at \$45bn, is between Northrop/McDonnell and Lockheed/General Dynamics/Boeing.

The Air Force's Stealth advanced technology bomber is being developed by Northrop, with large amounts of subcontracting led by Boeing. But the future of this project is still uncertain, since the first demonstration flights have yet to take place and Congress is showing increasing signs of horror at the price tag of \$50bn to \$60bn for full production.

To make the difficulties still tougher for the military contractors, the Pentagon work they do win in the future will be less lucrative than the past. Not only has the congressional cost-cutting scalpel sliced into procurement prices and profit margins, new procedures on progress payments and tax deferral have slashed into cashflow.

As a result of delays in progress payments and the introduction of completed cost accounting for tax purposes, an industry which is notorious for its huge cash appetite has been forced into the position of being a net contributor to the federal government fund its budget deficit, as Ms Comeau of Goldman Sachs notes.

Anatole Katsky

US Aerospace Companies—1986 Results

Company	1986 sales \$m	1985 sales \$m	% change on year	1986 earnings \$m	1985 earnings \$m	% change on year	1986 backlog \$m	1985 backlog \$m	1986 funded \$m	1985 funded \$m
Boeing	16,341	13,636	+19.8	665	566	+17.5	29.1	26.4	26.7	24.7
McDonnell Douglas	12,661	11,478	+10.3	278	346	-19.7	28.4	16.5	23.9	16.6
Rockwell Int'l.	12,296	11,338	+8.5	611	595	+2.7	11.6	9.1	14.6	8.7
Lockheed	10,273	9,535	+7.7	408	401	+1.7	17.6	9.8	17.9	9.0
General Dynamics	8,992	7,952	+11.8	(53)	383	Nm	22.5	16.8	22.2	14.7
Northrop	5,608	5,057	+10.9	41	214	-80.8	N/a	4.2	N/a	4.6
Grumman	3,052	3,099	+1.3	79	82	-3.5	N/a	6.7	N/a	5.4

*Fiscal year ending 9/30/86.

Research Associate: Rinka Nachmans

The Soviet Union

Space programme on course

THE WORLD'S second largest aerospace industry has continued to make steady progress in the past year, with the Soviet Union perhaps achieving more in terms of avoiding setbacks rather than chalking up spectacular new successes.

Despite a couple of launch failures (reported in the West) early this year, the Soviet space programme still runs about 100 launches annually, more than the rest of the world put together. And despite temporary problems in docking the Kvant module, the Mir space station has brought the Soviets closer to keeping a manned presence permanently in space.

Despite the fact that Mr Mikhail Gorbachev, from the tenor of his radical reform proposals, does not seem prepared to pour large amounts of extra resources into defence, Soviet military aerospace output has continued across a broad front.

The emphasis has been put lately on volume production of sophisticated fighters rather than bombers and on development of new attack helicopters (perhaps spurred by the Afghan war) to complement the very full range of transport rotary wing aircraft.

Last but not least—because the biggest changes may come here—is the heavy investment in new civil aviation, coming at a time of managerial change in Soviet civil aviation. For all its military links the civil sector has had least of those efficiencies and disciplines found in the military sector, and therefore the most to gain from Mr Gorbachev's general attempts at periodic or economic reconstruction.

The appointed reformer of the way the Soviet Union uses, if not produces, civil aircraft is Mr Alexander Volkov, the deputy air force commander-in-chief, who in early May became the first new Civil Aviation Minister and head of Aeroflot for 17 years. He faces a big task in trying to improve one of the world's worst services in terms of passenger comfort on the world's largest airline, which carried no fewer than 115m passengers last year.

The enormous size of Aeroflot is due to the lack, in many accessible parts of the country, of any alternative means of travel, and to the responsibility of the airline (through the Civil Aviation Ministry) for all use of aircraft in the economy. This includes such uses as crop-

spraying by biplane or transport and erection of oil drills and some buildings by helicopter. Thus, the business vastly predominates. Here the main reform will be to make Aeroflot's various regional divisions more autonomous and, it is hoped, flexible in meeting customer demands.

But the airline is also trying to increase its relatively small international traffic. Although it makes scheduled flights to 122 destinations in 97 countries, Aeroflot carried only 6m foreign passengers in 1986.

However, a business class will be introduced this year, says Mr Viktor Shumsky, chief of Aeroflot operations in Europe and head of the airline's Leningradskiy headquarters in Moscow. And, by 1990 the airline will have started to introduce the long-haul IL-96, to replace the IL-62, and the Tu-204, replacing the Tu-154.

These quieter and more fuel-efficient aircraft (not hitherto a hallmark of Soviet engines) should have no difficulty meeting any new noise curbs at Western airports, Mr Shumsky says.

Aeroflot is the Soviet Union's strategic air transport reserve, a role that other civil airlines play for their governments—though with its head a chief marshal of aviation, many of its pilots in the air force reserve and one of its duties being to help ferry troops to and from Eastern Europe, Aeroflot's military links are more obvious than most.

However, the Soviet Union is also upgrading its regular military transport fleet, with the expected entry into service of the (Nato code-named) Condor sometime in the next two years. This aircraft, seen last year at the Farborough Air Show, can carry 150 tonnes and is roughly comparable to the American Galaxy C-5B.

Western interest in Soviet military aerospace was heightened by the appearance last autumn at an airshow in Finland of the MiG-29 (Nato code-named Fulcrum) which set new speed records, and by recent Swedish and Norwegian air forces of the Su-27 (Flanker) and its underslung weaponry.

These two aircraft, the Soviet Union has for the first time all-weather, look-down, shoot-down fighters comparable to those possessed by the US. As for bombers, the Backfire, produced at around 30 a year, now

accounts for about one third of the Soviet bomber force, according to the 1987 version of Soviet Military Power, published by the US Defence Department.

However, US officials estimate that the Blackjack long-range bomber, larger and perhaps faster than the US B-1B, may complete flight testing and enter service by next year.

Lessons of the Afghan war appear to be driving forward improvements in Soviet helicopters, many of which now carry infra red cameras, suppressors, decoy dispensers and more armour to resist attack.

The impact of Soviet nuclear missile modernisation is impossible to gauge until the fall-out from Mr Gorbachev's disarmament control proposals, particularly for eliminating from Europe of all missiles between 500 and 5,500 kilometres range, becomes clearer. But even if there is a US-Soviet deal on these systems, the Soviet authorities reported by the US to be busy modernising both ends—intercontinental and short-range—of their nuclear arsenal.

In terms of strategic military programmes, both Superpowers have made the most of each other's research and development of missile defence. President Reagan's Strategic Defence Initiative (SDI) infringes the Anti-Ballistic Missile Treaty. Washington has countered that Soviet ground-based missile defence, particularly the nature of its new Kravnyarsk radar, also violates the ABM pact.

Certainly—without the publicity surrounding the US Star Wars programme—the Soviets for a number of years have been pursuing research into key technologies, such as laser, particle beam and kinetic energy weapons, of potential use in anti-missile defence. Some evidence for this comes from internal KGB documents acquired by the West in the early 1980s which talk of equipping Western technology for defence into "anti-missile research for our country" (not just Moscow, as permitted by the 1972 ABM treaty).

In a recent interview at the Space Research Institute in Moscow, Prof. Roald Sagdeyev admitted there was a military application, but he insisted it was "benign" in terms of improving early warning and

verification satellites required for monitoring arms control accords.

The US Defence Department tends to see military applications in virtually everything the Soviets do in space. Extraterrestrial astronomy is seen as potentially useful in maintaining accurate orientation of space weapons; spacecraft docking as potentially useful in repairing friendly satellites and disabling enemy ones; and earth observation is seen as already useful in reconnaissance and targeting.

While there may be something in the Pentagon suspicions, the Soviet space programme has much wider aims than this.

The three general aims of Soviet space research, says Prof. Sagdeyev, are astronomy (recoiling X-ray radiation from the heavens and so helping understanding of the origins of the universe), exploration of the solar system and near space, and observation of the Earth.

Cosmonauts on the Mir space station in orbit since February 1986 have been conducting a number of experiments to these ends, particularly with the arrival in April this year of the Kvant module carrying a lot of astronomical instruments from various institutes and universities in Western Europe.

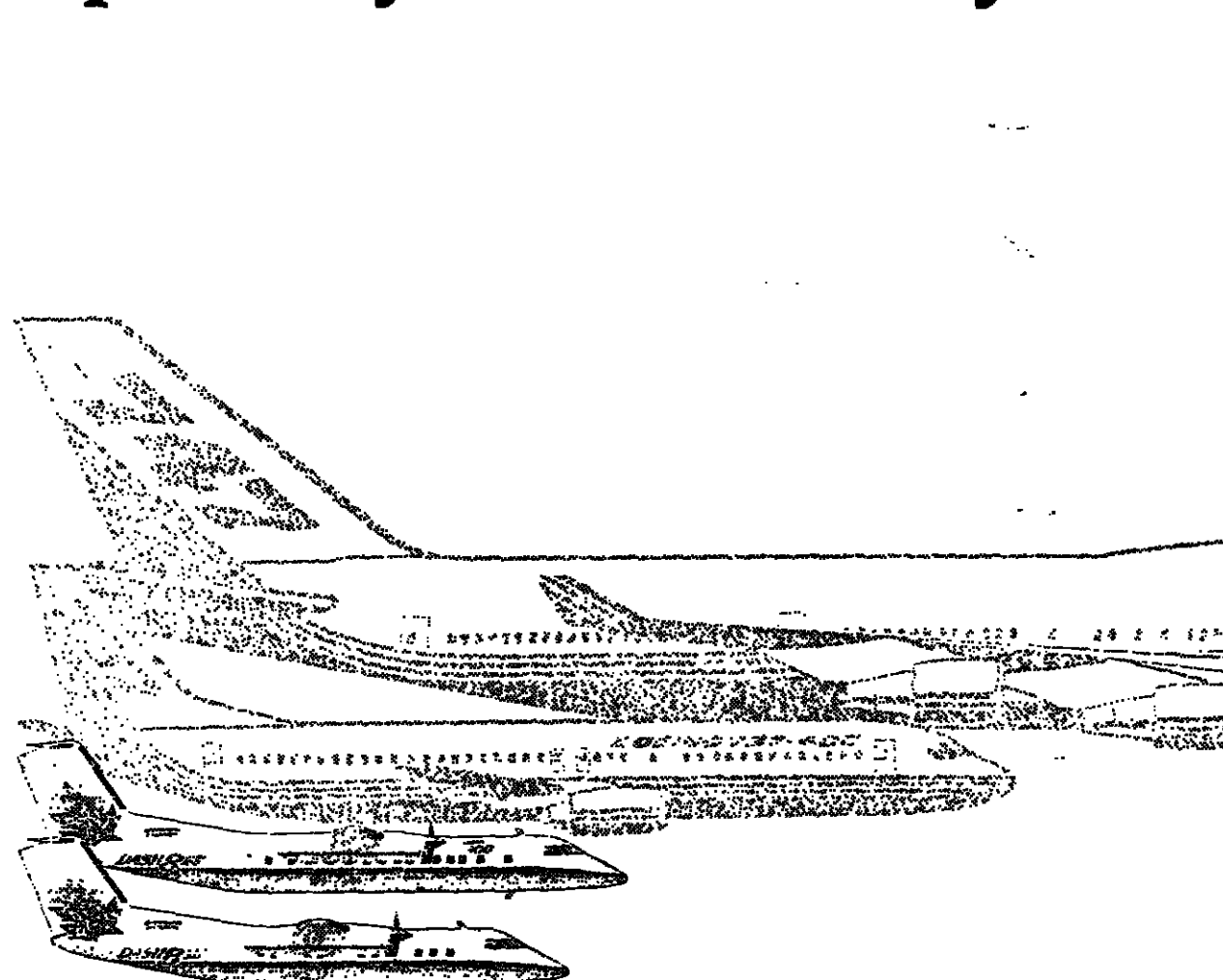
In fact, scientific co-operation with Western Europe has proceeded much faster than commercial co-operation. Following the US Challenger disaster and problems with European space launches, the Soviets invited foreign governments to put their rockets into space on top of Soviet rocket boosters. The only country to take up the offer so far is India.

But for all the recent Soviet successes and US setbacks in space, Prof. Sagdeyev cautions against a view that his country has a clear lead over the US. Each country has its different strengths—the US is seen in Moscow as being good at astronomy; ingenious at solar system exploration (with the Viking and Voyager missions); level in industrial applications (crystallography and behind only in biomedical studies where the vast Soviet lead in the number of hours its cosmonauts have spent in space puts the Soviet Union ahead in research into weightlessness and so on.

Some Soviet officials feel that NASA has been deliberately playing up a Soviet lead in order to attract more US funding.

David Buchan

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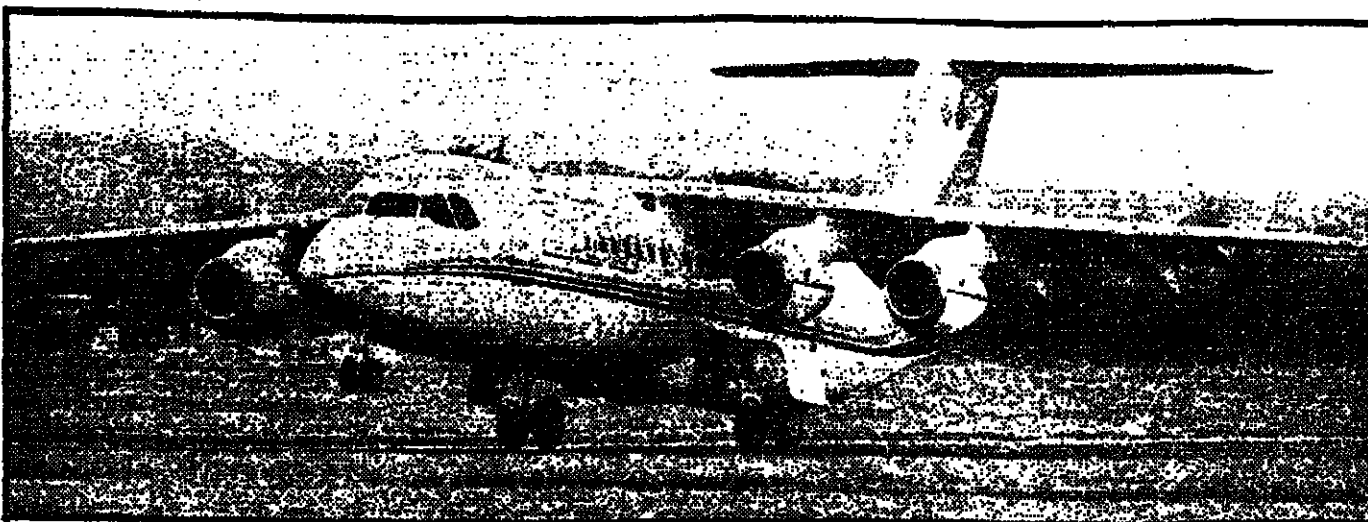


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Series 300 version of the British Aerospace 146 four-engine regional jet airliner makes its maiden flight

The UK

Exports trade balance doubles

THE UK aerospace industry retains its position as the second largest in the Western world, after the US, and during 1986 the industry's overall turnover is estimated to have amounted to at least £8bn, of which no less than 60 per cent was exported.

According to the Society of British Aerospace Companies, the UK industry's exports during 1986 amounted to more than £4.74bn. Imports, especially of new commercial jet airliners from the US, amounted to £2.8bn, so that the positive contribution by the industry to the UK's overseas trade balance was close to £2bn, nearly double the figure for 1985. The previous best trade balance for the industry was that of £1.1bn, recorded in 1982.

At the end of 1986, the UK industry's forward order book stood at well in excess of £20bn and is still rising as the industry's salesmen travel the world in search of new business. Contributing strongly to the industry's overall performance was the privatised British Aerospace, which achieved sales in 1986 of over £3.15bn, up 18 per cent over the previous

year's figure of £2.65bn, of which exports accounted for no less than 68 per cent. BAE's trading profit for 1986 amounted to over £217m, with pre-tax profits amounting to more than £182m, up 21 per cent over 1985.

Another major contributor was the newly privatised Rolls-Royce, with operating profits in 1986 of £273m, an increase of 29 per cent over 1985, and pre-tax profits of £120m. The company's turnover in 1986 rose £201m to reach a record £1.8bn, an increase of 12.5 per cent. Overseas business accounted for 71 per cent of total sales. At the end of 1986, the company's backlog of orders stood at £3.1bn.

In order to achieve these results, the UK industry continues to spend a substantial proportion of its cash on research and development, especially in areas of high technology, so as to remain ahead of the increasing competition, and especially that from the US.

Total research and development spending is difficult to quantify because much of it is covered by defence budgets on classified projects.

But British Aerospace alone spends over £32m a year of its

own funds on R & D while Rolls-Royce says that its gross outlay was some £253m in 1986, an increase of 9 per cent over 1985, and a reflection of the continuing high level of activity on both civil and military engine projects, supplemented by work on advanced engineering programmes.

The net Rolls-Royce research and development charge at £132m represented 7 per cent of turnover, compared with 6 per cent in 1985. The net figure is what Rolls-Royce spends on its own account, after taking into account the cash coming from the Government under defence contracts and shared advanced engineering programmes, and launch aid from the Government for specific civil engine ventures.

Probably the most significant development in the UK industry in recent months has been the privatisation of Rolls-Royce, after 16 years of government control following the original bankruptcy in early 1971.

Rolls-Royce itself has welcomed its return to the private sector, following the privatisation of British Aerospace itself, on the grounds that it will now

be free to follow its own business dictates.

The return of Rolls-Royce to the private sector thus leaves only one aerospace company in Government hands—Short Brothers of Belfast, which has been either totally or at times partially owned by the State since 1943, when it was taken over by the then war-time Government.

Short Brothers has been continuing its studies into future developments in the world airline commuter aircraft market in conjunction with de Havilland Aircraft Company of Canada.

A statement by Shorts earlier this spring said that both companies are now in agreement on the basic parameters for a new commuter-type aircraft, aimed at the low end of the passenger range for an aircraft that would have a wide fuselage cross-section for optimum passenger comfort.

The joint Shorts-DHC project team have begun their market analyses, and provided these

studies confirm overall demand and project viability, a decision to launch a new joint programme could be taken later this year.

In the meantime, other companies in the UK industry are now either engaged on, or awaiting government go-ahead for, a number of major programmes that will do much to ensure a high workload and continued profitability for the rest of this century.

In military aviation, British Aerospace and Rolls-Royce are awaiting the full production development go-ahead for the International European Fighter Aircraft (IEFA), being undertaken with West German, Italian and Spanish partners, together with the EJ-200 engine that will power it.

This approval is expected some time during the late summer of this year, and eventually this programme is expected to yield over 800 aircraft for the air forces of the four partners alone, which together with exports seems likely to run to well over 1,000 aircraft by the end of this century.

In civil aircraft, British Aerospace is steadily expanding the order base of its four-engine regional Type 146 jet airliner (with the stretched Series 300, aircraft making its maiden flight a few weeks ago), and its Jetstream 31 twin-turbo-propeller aircraft and Type 125 business jet.

Orders for the new Advanced Turbo-prop (ATP) have been slow, but are expected to be substantial eventually once the aircraft has entered service and proved its value as a quiet and economical short-haul airliner.

Also in the civil field, British Aerospace has now been granted £450m launch aid by the UK Government. To enable it to participate in the next generation of European Airbus, the short-to-medium haul A-330 and the four-engine long-range A-340.

A formal go-ahead for both aircraft is now expected at the Paris Air Show, and there new ventures will ensure a continued high presence by BAE in European civil aviation ventures for many years to come.

Michael Donne

West Germany

Firm government policy

THE WEST German aerospace industry is at last girding up its loins to do battle on a more equal basis with the technological giants in the other main industrialised countries.

Boosted by a more self-confident and forceful government policy on aerospace, the West German industry, although continuing to complain about lack of funds and ever-tougher international competition, is now in a better state to carve out its own place in the industrial sky.

Exactly what that place will look like—and how profitable (if at all) it will turn out—is, for the moment, immaterial. The main point is clear—the Bonn government has made a strategic decision in favour of bolstering the industry.

This includes developing a much more ambitious space programme, where the Research and Technology Ministry has not only greatly increased its budgetary outlays but is also taking a more confident and assertive stance over the role of West German companies' international projects.

The West Germans have no illusions that they can carry out big projects on their own. But even when international collaboration is the name of the game, a dynamic and well-funded domestic industry is essential to give the country access to the higher-technology work in aerospace which has often in the past gone the way of other partners like France.

In space, for instance, the new policy favoured by Mr Heinz Riesenhuber, the Technology Minister, could open the way for West Germany to send astronauts into space at the beginning of the 1990s not only with the US but also with the Soviet Union—adding a new dimension to the federal republic's present international cooperation.

Problems centre around the financial and management structure of Messerschmitt

Boelkow Blohm, the country's main aerospace company, which is manifestly undercapitalised to carry out the increasing range of tasks in air and space it is starting to shoulder.

Additionally, a range of management problems has yet to be overcome at Daimler-Benz. The motor group has now become West Germany's leader in the defence technology area, grouping ADG-Telefunken, Dornier and the aeroengine group MTU.

Although the financial power of Daimler has already brought a fillip to investment at Dornier, absorption of these new business areas has not gone ahead as smoothly as the top management at Stuttgart would have liked.

Despite these difficulties, the main path for the industry over the next decade has now been set down with a series of landmark decisions in important areas.

The government has always given clear political support to the next generation of the Airbus family, the A330 and A340. It has taken time to put together the details over finance to help meet the DM3bn the German partner in the project, Deutsche Airbus (owned by MBB) says it needs to carry the venture forward. Critically, the government has been trying to restructure Deutsche Airbus by encouraging new industrial shareholders to join MBB—a course which has proved a thorny one.

But especially after the British and French decisions to back the extension of the range during the weeks before the Paris Air Show, German backing was not in doubt.

In another key area—also proving to be much more costly than anticipated—France and West Germany are expected formally in July to give the go-ahead for the planned anti-tank military helicopter which has been stalled for three years since formally decided by Chan-

cellor Kohl and President Mitterrand in May 1984.

This follows a compromise agreement between the two countries' military authorities and their industry on simplifying the number of versions and also on increasing (to the detriment of the Americans) the amount of high-technology equipment carried on the aircraft by French and German companies.

The helicopter will now cost DM 9bn to develop and build for the German side alone, including the cost of an "interim solution" to take account of the fact that it will not now be ready to enter service until 1997 at the earliest, several years behind schedule.

But the government believes the extra cost is worth it, both to boost its industry's technological capacity—and also to give a general boost to Franco-German political co-operation.

Speaking with surprising unanimity, both Bonn and Paris say the project is necessary to stop the European helicopter industry becoming eventually mere subcontractors to the Americans.

The Defence Ministry and MBB are also gearing up to flesh out the West German role in the European Fighter Aircraft going ahead in the 1990s with the partnership of Britain, Italy and Spain.

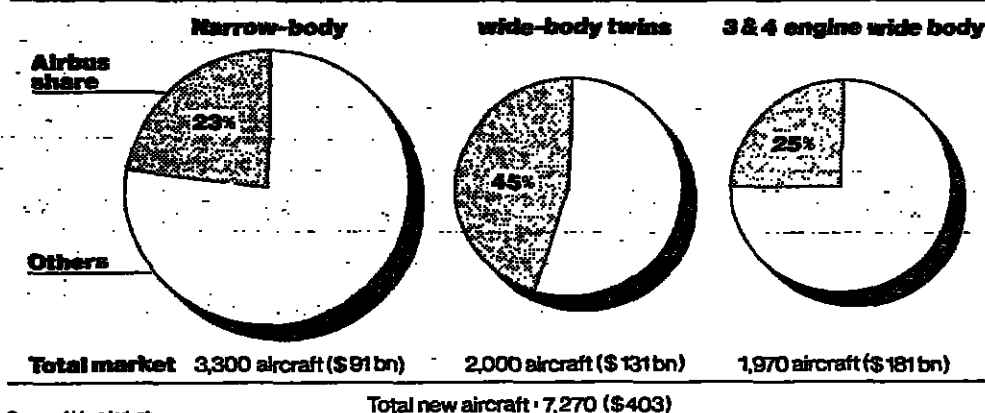
And in space, where the country has already agreed to participate in the European Space Agency's Ariane 5 and Columbus projects (in the latter, the Germans have the biggest share), a final decision is due in the autumn on a full go-ahead for the French-led Hermes space shuttle.

Further down the road, West Germany is looking to its Saenger rocket-plane concept as the next, and possibly greatly more economical, step into space travel.

David Marsh

Airbus market share 1986-2005

New aircraft—open market



France

Facing mixed prospects

A SHARP FALL in orders last year has cast a cloud over the prospects for France's aerospace industry, but the horizon is not without its bright spots.

French aerospace manufacturers booked a total of FFr 37bn of orders in 1986, compared with FFr 61.6bn the previous year, and its outstanding order book fell by the end of the year to FFr 130bn, a drop of 10 per cent over the year, according to Mr Jacques Benichou, who has just retired as chairman of the country's leading aircraft engine producer, Snecma. He remains president of Groupement des Industries Françaises Aéronautiques et Spatiales (GIFAS), the national aerospace manufacturers' association.

But in some sectors, such as the civil aviation field, the picture looks more encouraging.

For Airbus Industrie, the European consortium in which France's state-owned Aerospatiale group is leading partner along with Messerschmitt Boelkow Blohm of West Germany, British Aerospace and other manufacturers, the past 12 months have brought further pre-launch orders for the A-320, the new short-haul airliner which made its maiden flight earlier this year, and considerable progress for the next models in the Airbus range, the long-range A-340 and its medium-range twin the A-330. In total, the consortium clocked up 170 orders in 1986, nearly twice as many as in the previous years. Most of the orders were for the new A-320, but with 24 orders for the existing A-300 and A-310 models, Airbus claims to have maintained a two-thirds share of the twin-engine market.

The launch of the new A-340 programme, however, has not yet been fully agreed.

France's Prime Minister, Mr Jacques Chirac, has stood shoulder to shoulder with his British and West German counterparts in rejecting the assault of the US, which claimed that government funding for the Airbus consortium put its own manufacturers, especially McDonnell Douglas whose MD-11 is a direct rival to the A-340, at an unfair disadvantage.

But although Mr Chirac

appears to be behind the A-340 in spirit, his government has not yet committed itself firmly to funding its share of the programme.

French government officials were sceptical about the prospects of completing the super-jumbo engine proposed by the IAE consortium in time to power the A-340. Now that IAE has withdrawn from the lists, leaving the field to a variant of the CFM56 engine produced by the state-owned manufacturer Snecma and General Electric of the US, the chances of government approval have been enhanced.

If French aerospace companies have seized the need for international co-operation in the civil airliner sector, co-operation has not always been so easy in the military aircraft field.

Unable to agree with West Germany and the UK on the framework for a new European fighter aircraft, France has now launched its own domestic consortium to develop a fighter based on the Rafale prototype produced by Avions Marcel Dassault-Breguet Aviation.

The Avion de Combat Européen Consortium (ACE) will compete with the European fighter aircraft to be produced by West Germany, the UK and Italy.

The ACE grouping includes, besides Dassault and its electronics subsidiary Electronique Serge Dassault, Thomson CSF for the electronics and Snecma for the engines. Managed by a Dassault man, Mr Bruno Revellin Falcoz, it will be chaired by Gen. Bernard Capillon, new chairman of Snecma, and will also seek foreign partners.

An olive branch has also been extended to the Eurofighter consortium, raising the possibility of collaboration over some of the electronic equipment which will be common to the two aircraft.

The ACE now planned will be an aircraft weighing 8.6 tonnes empty. Powered by two Snecma M-88 engines and offering low visibility to radar, if not the full "stealth" potential originally planned.

However the green light from the Government for this fighter project will do nothing for Das-

sault's immediate problems, indicated by a 36 per cent drop in its net profits last year.

New orders more than halved last year, with the decline of the dollar worsening Dassault's competitive position against US rivals such as McDonnell Douglas and lower oil prices damaging the group's traditional markets in the Middle East. The year following the death of the company's founder, Mr Marcel Dassault, ended with job cuts for the first time in Dassault's history.

In another area, French co-operation with its European partners has made greater progress, although some doubts remain.

Mr Andre Giraud, France's Defence Minister, announced in March that he had agreed with his West German counterpart, Mr Manfred Woerner, on the launch of a programme to build a Franco-German anti-tank helicopter.

The helicopter is something of a compromise. The French have accepted that it should be a bi-motor design, with the pilot and gunner sitting in tandem, while the Germans had to agree to a European aiming system mounted above the rotors, rather than an already developed American nose-mounted system.

Even this agreement—after three years of stalled talks—has not assured the helicopter's future. Mr Giraud still wants Aerospatiale and West Germany's MBB to come up with substantial cost savings before he gives the final go-ahead. If the cost of the joint helicopter exceeds the cost of France building a helicopter alone, the project would have to be abandoned, he has warned.

Aerospatiale's helicopter division, however, scored a number of successes last year. Total orders climbed from FFr 5.4bn to FFr 6.7bn, with 43 orders for the super Puma twin-engine helicopter. This helped to compensate for falling orders in the aircraft division, but the company's total orders fell to FFr 26.6bn from an exceptionally good FFr 34.8bn in 1985.

George Graham



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AEROSPACE 12

Sweden

Fighter set for flight trials

APRIL 26 was roll-out day in Linköping, home to Saab-Scania and Sweden's aerospace industry. That was the first public view of the JAS 39 Gripen, Sweden's new lightweight multi-role combat aircraft.

The fighter-ground attack-reconnaissance aircraft has been developed for the Swedish armed forces by the JAS industrial group, a consortium consisting of Saab-Scania, Volvo-Flyg, Ericsson Radio Systems, and the government-owned FFV Aerotech.

The first prototype is due to start trial flights before the end of this year and a further four test aircraft are under production. First deliveries to the Swedish Air Force are planned to start in 1992.

So far, the Swedish Air Force has ordered 30 JAS 39 aircraft, and has an option on a further 110 for delivery before the year 2000. The whole programme will cost SKr 41bn.

No orders from abroad have been forthcoming but both Switzerland and Denmark have expressed interest in the aircraft, and suggested they might buy 30 to 50 each. The JAS 39 can be tailor-made to a certain extent to suit customers' requirements, depending on the weapons and technology required. At the moment, it is seen as competing with the US F-16 and F-18 aircraft, as well as with the Israeli Levi, French Rafale and EFA project—though the last two are scheduled to start operating after JAS 39.

Though the JAS 39 is lighter than its Swedish predecessor, the Draken, it is still fractionally overweight and work is

under way to reduce the weight further.

From the start, the pressure was on to develop an aircraft with a low life cycle cost (ie, economical to buy and operate), and to move away from the trend in producing bigger and more expensive military aircraft. The Swedish Air Force wanted an aircraft that was lightweight, reliable, had low fuel consumption, and could be serviced by conscripts.

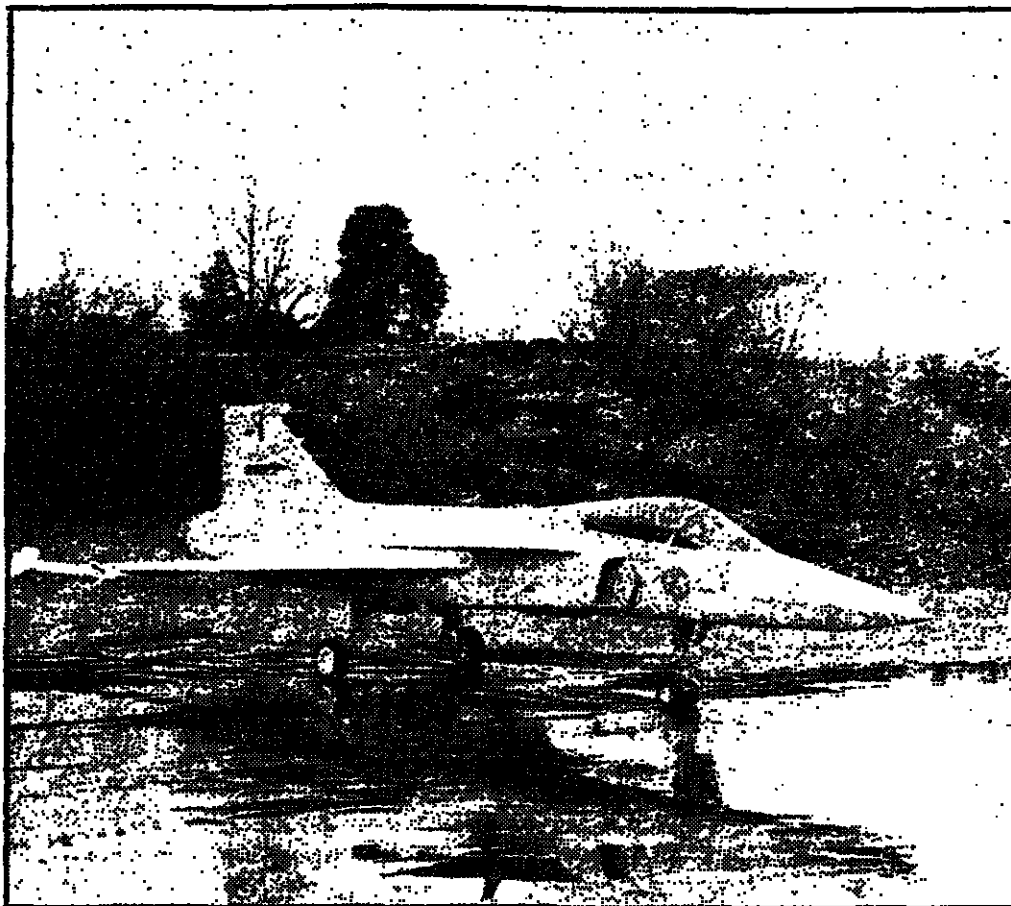
The JAS 39 take-off weight should eventually be reduced to about 8 tonnes, and to save weight, 30 per cent of the structure—including the wings (which were manufactured by British Aerospace for the prototype but which will be manufactured by Saab thereafter), canard and fin are made of carbon fibre composites.

The lower-weight engine (called the RM 12) is a modification of the General Electric F404 engine. Volvo Flygmotor collaborated with General Electric on this to give higher thrust and more effective ability to withstand collisions with birds.

JAS 39 had to be multi-role so that built-in equipment need not have to be changed between missions, offering considerable flexibility.

It has a canard-delta configuration which is considered the best for combining super-sonic performance and good low-speed characteristics at take-off and landing.

JAS has an advanced multi-mode pulse doppler radar which enables each individual aircraft to carry out all types of missions with special emphasis placed on counter-counter measure performance.



The new Saab JAS-39 Gripen (Griffin), rolled out in April, is a multi-role fighter, attack and reconnaissance aircraft. It is intended to replace the earlier JA-37 Viggen (Thunderbolt) in squadron service in the early 1990s.

Saab's other military project is the production of the attack Viggen, which will be completed in 1989. The JAS 39 is destined to replace both the Draken and the Viggen in the 1990s.

In June, Saab will deliver the first of the refurbished Drakens to the Austrian defence forces. In 1985, Saab agreed to buy 24

Drakens from the Swedish air force and refurbish and modify these for Austria at a cost of SKr 1bn.

For Saab-Scania as a whole, 1986 was a record profit year marked in one respect: the aircraft division showed a loss before tax of SKr 33m compared with a pre-tax profit of SKr 106m in 1985.

Turnover was static last year at SKr 3,276bn and pre-tax return on total assets was 0.9 per cent, compared with 4.7 per cent in 1985.

The aircraft division is now equally divided between military and civilian production, having been predominantly military in emphasis during the 1970s.

A number of Saab's 30-40 seater SF 340 airliner were delivered for leasing, the company says, which means that the profits for these were not accounted for last year. The SF 340, which according to Saab has captured 30 per cent of market share in its particular class, competes with the de Havilland Dash-8 of Canada and Embraer's Brasilia 120 (of Brazil).

Deliveries are expected to decline in 1987 to between 30-35 aircraft compared with 37 in 1986. However, it is not clear when the Saab aircraft division as a whole will return as a profit.

developed by Saab and Fairchild Industries of the US but Fairchild opted out of the project in November 1985 (paying \$22m to Saab), and Saab has since had to transfer production of the wing and tail sections to Sweden from the US.

As a result, Saab has incurred extraordinary costs and the additional burden of carrying all the marketing and servicing costs, which are therefore much higher than in the previous year.

Saab has sold over 100 SF 340 aircraft altogether, and aims to achieve a profitable programme by 1990. A further nine SF 340 aircraft have been delivered so far this year, and customers include Air Midwest and Brockway in the US, Sair of Sweden, Britair and Air Limousine of France, Crossair of Switzerland, and Comair of Canada.

Deliveries are expected to decline in 1987 to between 30-35 aircraft compared with 37 in 1986. However, it is not clear when the Saab aircraft division as a whole will return as a profit.

Sara Webb

Netherlands

Dollar's nosedive hits export earnings

THE NOSEDIVE in the dollar has created turbulent weather for Fokker, the Dutch aerospace group. The weaker US currency has given American companies a sharp competitive edge at the very time that Fokker is having to spend heavily to get its two new aircraft off the ground.

The new Fokker 50 and twin-jet Fokker 100, 50 and 100-seat airliners, probably will not start making money for at least seven years and the veteran F-27 and F-28 airliners have both been buried after long and profitable lives.

Sales prices in the industry are dropping, undercut by the Americans and the revenue that does land at Fokker shrinks when translated from dollars (in which most aircraft are priced) into Dutch guilders. Costs meanwhile are incurred in the strong guilder.

"We have it damned difficult right now," Mr Frans Swartouw, chairman, conceded at the presentation of the 1986 annual report. Earnings plunged by 42 per cent to Fl 15m last year from Fl 33m in 1985 and for this year the company is saying only that it expects to remain in the black.

The rough ride that Fokker, the country's only aerospace company, is experiencing at the moment is a sharp turnaround from as recently as a year and a half ago when it was flying high on a healthy order book and a promising outlook. The short-range Fokker 50 prop-jet, successor to the F-27, and the medium-range Fokker 100 fan-jet, successor to the F-28, were quickly chalking up orders after being unveiled in the autumn of 1984.

Deregulation of the airline industry and rapid growth in regional carriers seemed to offer a flourishing market and the new aircraft were touted as low-priced because of the cheaper design costs involved in producing modernised versions of existing aircraft. Both offer modern electronics, high fuel efficiency and low noise levels—features designed to appeal to airlines in search of cost savings and environmental friendliness.

But since then things have changed dramatically. The dollar, the Dutch Government has helped in getting through the bad patch. Last year it got permission to repay Fl 1.2bn in government loans and guarantees, used for developing the new aircraft, over a longer period of time.

But state aid to the company has recently drawn sharp criticism from the General Accounting Office, the government's financial watchdog. The agency expressed doubts about

whether Fokker ever would repay more than Fl 300m in state aid to finance the F-28, MD-100 (the ill-fated aircraft with McDonnell Douglas) and Airbus Industrie components. The government credits could end up being straight subsidies, the agency warns.

But Mr Swartouw, the dynamic chairman of Fokker, vociferously defended his company's use of public funds and argued that the Dutch company is given less government money than most aerospace concerns in the world. Fokker ought to get more help in trade financing now that the strong guilder is hurting exports, he said.

Until the new aircraft start making money, however, Fokker is looking for more profits in related activities such as maintenance services, military contracts and subcontracting for Airbus. Earlier this year a new subsidiary, Fokker Aircraft Services, was set up to strengthen maintenance services although the company admits that the field is crowded with competitors.

Fokker emphasises that it has no intention of going into the design of military aircraft but is keenly interested in making and installing more components. Talks are currently under way with the US about an additional contract to make electrical circuits for the PATRIOT air-defence missile system, which the Dutch Government is considering buying.

The Dutch company also is involved in the NH-90 helicopter for Nato in the 1990s. Which parts Fokker would make is still to be decided in the studies. One of the most promising projects could be a 5 to 5 per cent stake in Airbus Industrie's new medium and long-range A330 and A340 aircraft. Negotiations are going on and it appears that Fokker probably would make components for the wings and landing gear, as it did for the original A-300 and A-310. Fokker skipped the A320 and views the newest version of the Airbus as an attractive way to tide it over for now.

One potential political problem is Fokker's announcement that it would need more government aid, reportedly "several hundred millions" of guilders, to take on the new Airbus work. In many countries around the world aerospace is viewed as a strategic industry worth limiting, but in the Netherlands national pride in selected industries is far less tangible.

Finally, Fokker also is looking at a possible medium-range aircraft called the Alra 90 with Boeing, MB of West Germany and IPTN of Indonesia.

Laura Raum

Italy

Many linked projects

AS IN SO many other sectors of advanced technology such as telecommunications or semiconductor manufacturing, Italian aerospace has had to look abroad for collaborations which will deliver technological know-how, markets and "niche" activities.

The list of projects linking Italian companies with foreign aerospace counterparts is a huge one, embracing fixed-wing aircraft, helicopters, aircraft radar and guidance systems and space satellites. The end result, as Mr Renato Bonifacio, president of the country's largest publicly-owned aerospace company, Aeritalia, observed a few months ago, is that the Italian industry is involved in a very wide range of defence products.

Thus Aeritalia manufactures training aircraft, a light combat medical support aircraft called the AMX is offered by a joint venture involving Aeritalia (48 per cent), Aeritalia (22 per cent) and Embraer of Brazil (30 per cent); Italian participation in the Tornado and European Fighter Aircraft (EFA) provides a combat and interdiction military transport, the G222; Agusta is involved in a number of military and civilian helicopter projects of which the most important are the EH 101 with Westland of the UK and an international development project involving Britain, Italy, the Netherlands and Spain based on Agusta's own A129 light anti-tank helicopter.

This is a fairly impressive range of activities for an industry which has only recently begun to benefit from a volume of national defence procurement remotely comparable to that of other European countries. According to Mr Michele Nones, an expert on Italian aerospace, the industry has absorbed L7,000bn (£2.5bn) in the last five years, equivalent to 43 per cent of the Italian military equipment budget.

But, as a whole, the aerospace industry is of modest proportions and capacities compared with Britain and West Germany. In 1984 the time-lag with Italian statistics is always greater than elsewhere. Italy accounted for only 8.6 per cent of the aerospace turnover in the European community compared to 17.5 per cent for Germany, 34.6 per cent for the UK and 36.4 per cent for France.

In contrast, it has continued to provide growing employment, even when key companies such as Agusta have been struggling for profitability. Total payrolls have gone from 4,400 in 1983 to nearly 43,500 in 1985, with about one-third of the employees working in the south.

The balance of the workforce reflects the rising technological component in the industry's output. Between 1981 and 1985, blue collar employment fell by 17 per cent while the numbers of researchers and managers rose by 17 per cent.

Nonetheless, the research and development effort still lags behind the European averages which are themselves behind the US. According to figures quoted recently by Mr Raffaello Teti, president of the Agusta group, the US spends a little less than 3 per cent of its gross domestic product on aerospace R and D which should total \$63bn this year. In the other European community aerospace countries, R and D averages around 2 per cent of GDP while in Italy, it barely exceeds 1 per cent, equal to about \$8,000bn.

This relative undercommitment to R and D is causing concern within the industry itself. The competitive need continually to update the technology employed in products whose production runs must last many years to recover costs clearly puts a premium on R and D. Mr Bonifacio at Aeritalia sees Italy's disadvantage in terms of advancing basic research and applying new technologies through prototypes.

"As I believe, this is a realistic view, the risk of being relegated to a secondary role is evident, current levels of technology, though significant, are no absolute guarantee of being able to maintain present achievements in the future," he said in a lecture late last year.

Industrialists appear to feel that the Italian Government needs to give a higher priority to the needs of aerospace, looking enviously all the time at the example of France. Nevertheless, it is conceded that improvements in the Ministry of Defence's planning of future requirements and in its involvement of the industry in this planning is leading to an improvement.

The Ministry now envisages the purchase of 700 helicopters and 900 fixed-wing aircraft by the year 2000 as part of a modernisation and development

programme for the Air Force. Virtually all of the new equipment is the product of Italian collaboration with other companies, mostly European, and represents in a real sense a pattern of transnational purchasing and manufacturing collaboration which is held to be necessary for Western Europe as a whole.

Nonetheless, the arguments in favour of reorganising the structure of the Italian industry continue to rage. The problem arises from the fact that Agusta is owned by Efim, the smaller of the broadly-based state holding companies, and Aeritalia by IRI, the very much larger state holding company.

The disadvantages of this arrangement were identified in a parliamentary committee report which was finally brought under consideration in the general election. The report said that there was a limit to the amount of public money available to finance new aerospace projects and it was unfortunate that this should be divided between competitive operators.

It identified as the most important area of overlap the production of fixed-wing aircraft by Siai-Marchetti, the Agusta subsidiary.

Keeping the two companies under separate banners was also blocking the kinds of economies of scale which could only be achieved by creating a grouping closer in size to the European average.

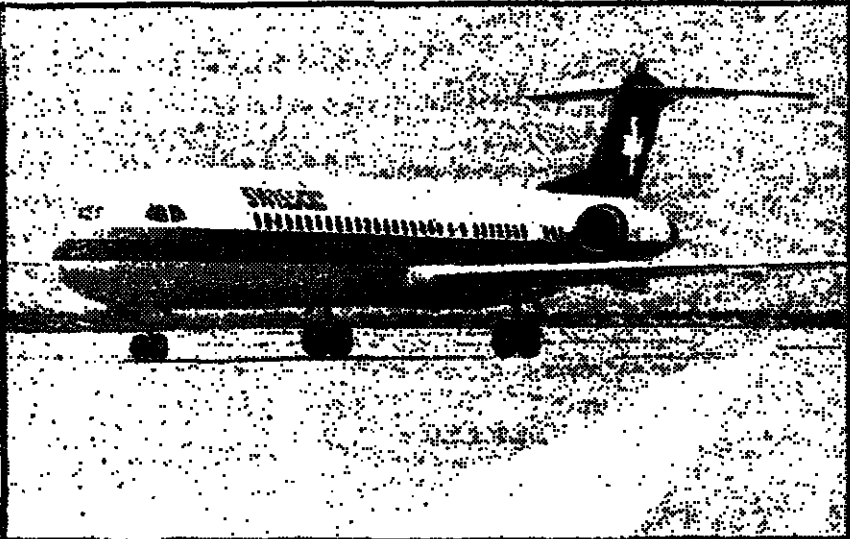
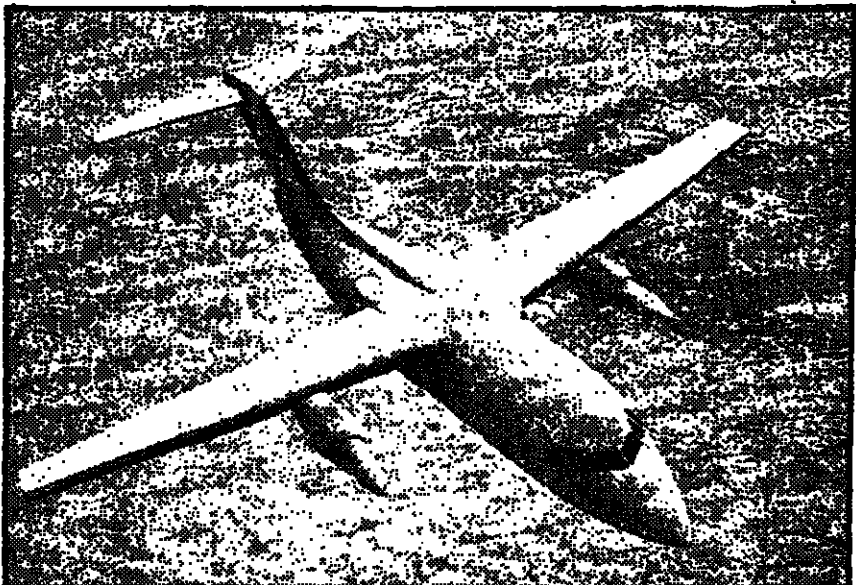
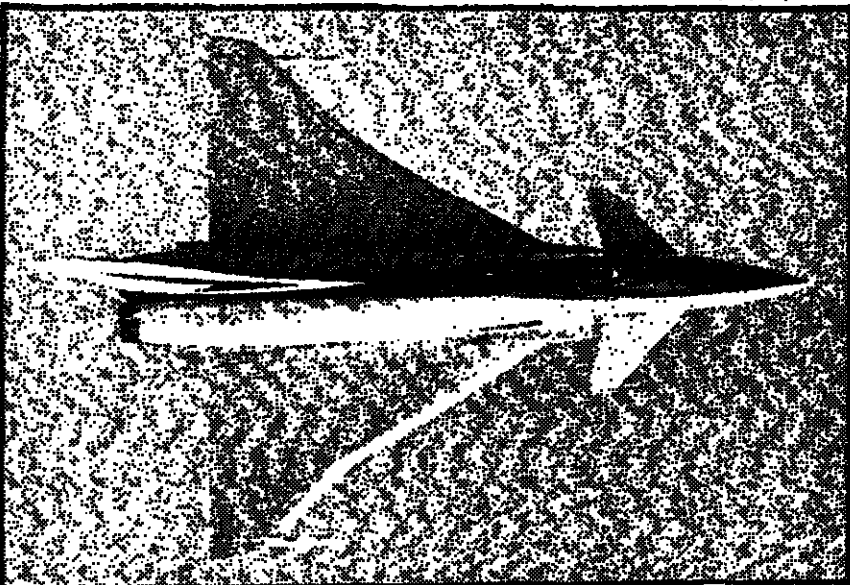
The all-party committee concluded, therefore, that Agusta and Aeritalia would be better brought under the same holding company. In the past the question as to whether this should be IRI or Efim has been bedevilled by the fact that the former is within the Christian Democrat sphere and the latter the Socialist Party's.

The criterion, the report says, should be the degree of support and synergy which could be provided by other companies within one or the other state groups. Given the presence in IRI of Italtel, the telecommunications company, and Selelioni, the electronic company, the committee concluded that "there is into IRI with Aeritalia would strengthen the innovative capacities of Italian Aerospace as well as its financial results."

John Wyles



The Saab 340 twin-turbo propeller commuter and regional airliner is finding widespread use among world airlines.



Top left: The French Dassault Rafale advanced technology combat aircraft is the major rival in Western Europe to the European Fighter Aircraft (EFA) now under development by the UK, West Germany, Italy and Spain.

Top right: Vision of the future. The British Aerospace 146 is currently a four-engine aircraft, but it could be refitted with two "prop-fan" type engines, and would look like this.

Bottom left: The new, Dutch-built Fokker 100 twin-engine jet airliner is substantially international in concept, with wings by Short Brothers of Belfast and Rolls-Royce Jet engines.

Bottom right: Boeing Aircraft of the US is now building its new Stearship business aircraft, of which the third prototype is seen above. First deliveries to customers begin later this year.

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Israel

Worries of a fragile industry

IT IS ALWAYS risky having all your eggs in one basket, but that is precisely the uncomfortable position the Israeli aerospace industry finds itself in today.

A number of Israeli companies are in the forefront of technological development in avionics; significant research work is under way on anti-missile defence systems; and the industry has carved a substantial niche for itself in the growing world market for refits and upgrades of existing aircraft.

But if the Lavi combat aircraft is cancelled—as is currently being threatened—the consequences for the still fragile Israeli industry would be little short of catastrophic. The impact of cancellation would extend well beyond the advanced aircraft maker, Israel Aircraft Industries, to a wide range of local and foreign subcontractors employed on the ambitious US\$4.5bn project.

State-owned IAI, a billion dollar conglomerate with interests ranging from armoured cars to signal intelligence systems, has had a mixed record in developing and selling its own aircraft over the past two decades.

Commercial success came early with the Kfir, a variant on the Mirage III, and with its five jet, the Westwind. But newer indigenous Israeli models such as the Astra, a larger and more advanced business aircraft, and an ungainly-looking STOL cargo aircraft, the Astra, appear unlikely ever to repay their development costs.

With more than 22,000 employees, IAI is a major enterprise by any standards. Sales

have grown steadily over the past four years, and exports now represent 60 per cent of turnover compared with 42 per cent in its 1983-84 financial year. Profits, however, have been disappointingly small.

Balance sheets have not been published since March 1985, but independent analysts believe the company has moved heavily into the red as the strain of building the Lavi prototype began to build up. Approximately a third of IAI's manpower is currently involved with the project in one form or another.

A small, multi-role aircraft comparable to General Dynamics' F-16, though with superior ground-attack capability, the Lavi has become a symbol of Israel's striving for technological self-sufficiency, particularly in the defence field. Its avionics are reckoned to be as good, or better, than those of any aircraft currently in service with neighbouring Arab countries. When it made its maiden flight late last year, national pride and joy knew no bounds.

Technological achievement or not, attitudes towards the new aircraft within the Israeli Air Force are, however, damagingly negative. As pressure has mounted from Washington for IAI's baby to be strangled at birth, before it grows into an unaffordable monster, senior Air Force commanders have come out publicly in favour of buying a modified version of the F-16C instead.

The problem is simply one of spiralling development costs, with the project eating up an increasing share of the \$1.8bn

the US provides annually in Foreign Military Sales grants. In an attempt to get to grips with the problem, Mr Yitzhak Rabin, the Defence Minister, has ordered that annual spending on the Lavi be kept to US\$550m to the end of the decade. But even insiders admit that this ceiling is unrealistic.

Instead of cancelling the Lavi outright, one possibility currently being promoted by Mr Rabin is to designate the aircraft as a "national project", removing it from the confines of the circumscribed defence budget. While this bookkeeping ploy is unlikely to satisfy the Pentagon, it could appeal to Israeli politicians as an acceptable way out of their dilemma.

After so much investment of time, money and national prestige, no cancellation decision would be easy for any Israeli government. What makes it doubly difficult is that, for IAI, no comparable substitutes are in sight to fill the gap. In addition, the state-owned company will be the biggest loser from Israel's reluctant decision to ban new arms sales to South Africa—if this announced intention is translated into practice.

The exact figure is a closely guarded secret, but Western diplomats estimate that South Africa is probably responsible for about US\$200m a year in defence revenues for Israel. The relationship with Pretoria is a two-way street, with South African technicians said to be working on the Lavi and South African finance invested in Rafael, the government weapons research and development authority in the north of

the country. If this were not enough, the government is also struggling to keep alive Bet Shemesh Engines, the country's only manufacturer of complete aero engines, increasingly run down as its financial difficulties multiplied.

The latest plan calls for the sale of the government's majority holding in Bet Shemesh Engines to Mr Stier Wertheimer of Iscar, a successful exporter of turbine blades and precision cutting tools, with Pratt and Whitney retaining its minority interest.

It is, perhaps, no coincidence that IAI's two most prosperous subsidiaries these days are Elta, which makes state-of-the-art electronic warfare products including airborne radars, and Bedek, the company's maintenance and overhaul division. The upgrading and refitting of overseas customers' aircraft has become something of an Israeli specialty, being both a discreet and cost-effective way of prolonging an aircraft's planned lifespan.

Other straws in the wind are sub-contract work on the Pentagon's "Star Wars" programme, and an increasing volume of useful off-set purchases by US aerospace majors. But if, despite everything, the Lavi goes down, Gen. Mordechai Hod, the former Air Force commander who took over last year at IAI, will find himself fighting the battle of his career to limit the damage which will undoubtedly ensue.

Andrew Whitley

Spain

Export sales set to rise

FOR A COMPANY that has just had the worst financial year in its history, Spain's aerospace manufacturer Construcciones Aeronauticas (CASA) is in remarkably confident mood.

The state-controlled aircraft company nosedived into a Pta 8.6bn (\$69m) loss in 1986, after making a Pta 1.6bn profit the year before. Its sales were down from Pta 47.8bn to Pta 46.4bn, hit by a sharp drop in exports from Pta 37.2bn to Pta 32.5bn.

In January, the INI public-sector holding group removed the chairman, Mr Fernando de Caralt, and put in one of its own managing directors, 40-year-old Mr Javier Alvarez Vara. The new chairman, an aeronautical engineer by training, had previously had the aviation and defence sectors as part of his responsibilities at INI, and he has since moved swiftly to replace most of Casa's divisional heads.

The company's performance was badly affected by the fall of the dollar, in which its exports, the bulk of its business, are denominated, and by its failure to sell in the US market. However, Mr Alvarez Vara describes the results as a temporary upset, reflecting above all the start-up costs of new programmes.

To combat what he calls "the fever caused by rapid growth", Casa is avoiding further expansion of its 10,500-strong workforce, reducing the rhythm of investments and reorganising production. But he says the company still has "a brilliant future".

Although 72 per cent state-owned with Northrop of the US and Messerschmitt-Boelkow Blohm of West Germany as the main minority shareholders, Casa stands out among aerospace companies as one of the least dependent on home-grown purchases. These make up only about a fifth of its business.

In the US, Mr Alvarez Vara says he is "not overwhelmingly happy" with the offsets being offered by the US under military co-operation programmes, although "we have been one of the great beneficiaries of the little there has been." The US civilian market is also a weak one for Casa's aircraft.

The company's own three aircraft make up rather less than half its total activity. Its C-212 Aviocar, a high-wing twin turboprop for both military and civil use, is now in operation in 40 countries, with about 400 aircraft sold in some 70 different versions. It is especially suited to developing-country markets because of its low maintenance costs, and Mr Alvarez Vara compares it with the old DC-3. "It can do anything except make love," he says.

The Indonesian company Nurtanio, which started out making the Aviocar under licence, is partner in a joint production venture for the CN-235, an

updated, bigger and longer-range aircraft but with the same design philosophy. It broadly resembles the Aviocar, with the same rear cargo-ramp door, but has an increased capacity of 44 passengers or 5 tonnes payload, against 25 passengers or 2.5 tonnes.

Apart from Spain and Indonesia, the CN-235 has been sold in Saudi Arabia, Botswana and Panama. Casa is now pushing in other markets and is discussing a joint project with Poland.

Its third own-design aircraft is the C101, a single-jet basic military trainer with ground-attack capability, which has been exported to Chile, Honduras and Jordan.

The company is now looking for a European partner for a new fighter project, the AX, which it hopes will reach the viability study stage this year. Aimed at complementing the European Fighter Aircraft (EFA), in which Casa is par-

ticipating, and the F/A-18 fighters which Spain is buying from McDonnell Douglas with some input from Casa, the idea is a robust, low-cost attack aircraft with limited air-combat capacity.

It will not be the "dernier cri" in technology but will be "very advanced for its pretensions," says Mr Alvarez Vara. "We're a poor country," he adds with a smile. "We can't have planes like the US 6th Fleet has for every mission."

The fighter would be about three years behind the new Eurofighter. Spain has a 13 per cent share in the EFA project, alongside Britain, West Germany and Italy, a big improvement on the 4.2 per cent share Casa has in Airbus.

Although it would like a bigger role in Airbus, the programme accounts for about a quarter of Casa's total sales; its participation includes the stabiliser, made out of carbon-fibre. This technology for the horizontal part of the tailplane has become a Casa specialty and the company says Airbus was the first civil aircraft to incorporate it. Casa is also providing stabilisers for the F/A-18, among other parts, and is due to carry out similar work for McDonnell-Douglas' MD-11 airliner.

Casa's other activities include subcontracting for companies such as Boeing, Dassault and Canadair, and parts for the Ariane rocket. For more than 30 years it has been doing maintenance for the US Air Force as well as the Spanish Air Force, and currently overhauls US Phantom and F-15 fighters based in Europe.

The company's present cost-cutting efforts will entail "some sacrifices" among its less profitable programmes, Mr Alvarez Vara says, although he will not be optimistic that this year will not be so bad.

David White



Casa's C212 Aviocar, now in operation in 40 countries

Brazil

Confidence in the future

EMBRAER, Brazil's state-owned aircraft manufacturer, has been flying high on sales and reputation, but merely crop-spraying when it comes to profitability.

That, the company claims, is about to change. In the medium term, the company intends to dispose of its production of small executive aircraft through a privatisation scheme and aim for the stars with a new joint venture in rocket launchers and missiles that will justify a claim to be the Third World's first genuine aerospace company.

This year, Embraer's traditional business remains intact, despite Brazil's mounting problems over its suspension of interest payments on US\$68bn of longer-term commercial bank credits and a worsening inflation crisis at home.

If foreign interest in its products—dominated by commuter planes and the air force trainer, the Tucano—were the reason, the confidence could be justified. While last year total sales amounted to some US\$377m, double those of 1984, these are now expected to rise sharply again to US\$630m this year of which US\$430m should come from exports.

The boost comes largely from sales of the Brasília, a 30-seat commuter plane, now attracting considerable interest, particularly from US regional airlines which account for more than 60 per cent of current orders. Forty-one Brasília—selling at about US\$5.5m—are due to be delivered this year, representing 52 per cent of the company's export sales.

Company officials claim that performance over the past two years has been inhibited by the change from the popular, but now ageing 13 to 15-seat turboprop Bandeirante to the larger aircraft.

The company is now preparing for production of its new EMB-123 rear-engine 19-seat turboprop which is being manufactured in conjunction with Argentina's Fabrica Militar de Aviones (FMA) and is designed to take up the market that the Bandeirante filled.

The \$300m investment with assembly lines in Brazil and Argentina plans first deliveries for 1990 at a price estimated last year of between \$3.2m and \$3.5m, depending on customer specifications.

Sales of Embraer's air force trainer, the Tucano, are holding up well, however, following the headline-grabbing deal with Britain's Royal Air Force. The company now claims that its orders of 386 Tucanos (226 already delivered) make it by far the world leader in the turboprop trainer class, in only a little over three years from the first marketing efforts.

Britain and Peru took delivery of their first this year, and there are rumours—not encouraged by the company's discreet management—that both France and China may be close to lodging substantial orders.

The last potential overseas earner is the AMX tactical ground attack strike aircraft, currently being developed with Aeritalia and Aeromachi of Italy. Embraer's contribution—wings, air intakes, horizontal stabilisers and weapons

pylons—account for some 30 per cent of the finished product, which it is hoped will attract widespread interest both in the Third World and the developed countries.

According to the Brazilians, the first AMXs of a possible 150 should be delivered to the Brazilian Air Force in 1989, while the Italians are anticipating as far as 1990.

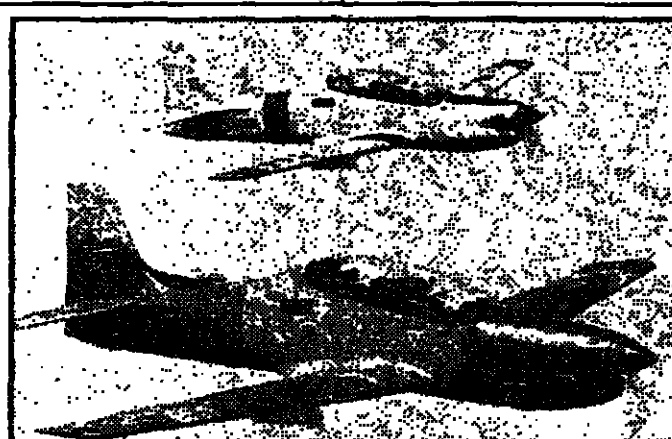
For Mr Orizio Carlos da Silva, who inherited the chief executive's job from Col Ozires Silva, now heading the state oil company, Petrobras, the task now facing the company is to concentrate its technical expertise and keep management slim.

For that reason, Embraer plans to dispose of its executive aircraft subsidiary, Neiva, which contributed just 3.5 per cent of total sales, move away from general aviation and go for the big dollars—and big risks—that rocket launchers and missiles appear to offer.

"We can't invest in all kinds of technology," Mr da Silva said this month. "We have changed sales in terms of technology, equipment and personnel training—this means we have to participate in programmes that use these things."

"You need to have a light management structure—we were becoming a very big, very expensive company."

Mr da Silva's solution has come in Orbita, a new joint venture with Brazil's state-owned arms, tanks and armoured vehicles manufacturer, Engesa. The new company, as yet funded only by \$4m seed capital, is held 40 per cent each by its two major contributors with the remaining



The Embraer Tucano air force trainer. Its sales are expected to rise

20 per cent coming from other private and public sector companies.

Its first two research programmes will go into developing options for an air-to-air missile and an anti-tank missile. But the area that most excites Mr da Silva appears to be the possibility of developing a Brazilian launcher to help raise the home-grown component in the country's costly satellite programme.

Details of the satellite plans remain hard to establish, though clearly the applications remain limited to broadcasting and meteorology.

Nevertheless, with the US Challenger and the European Ariane projects currently in the doldrums, it would be unwise to write off Brazil's efforts—particularly in the light of its recent successes in supplying inexpensive, but reliable, workaday products to the armed forces of the Third World.

"Orbita is not intended to be in the front line of competition in space activities," Mr da Silva emphasises. "We must keep our feet on the ground and supply Brazil's needs for launchers for communications and meteorological satellites with solid fuel rocket launchers."

In the meantime, Embraer plans to keep its aviation sights firmly on the horizon, with a determination to hold its market share in both the commuter or regional airlines market and in air force trainers.

So far, Brazil's debt problems with the rest of the world have not affected the company despite widespread fears that credits could be effected. The lack of retaliation, and Mr da Silva's belief that life in Brazil without high inflation is the oddity not the rule, should calm worried foreigners abroad.

Mr da Silva claims that Embraer's low profitability of some 4 per cent of total sales last year was an aberration. Others argue that some in the government have still continued to dream of 7 per cent growth in GDP despite inflation rising now at 20 per cent a month.

For Embraer such growth rates remain some way off. For the moment Mr da Silva has declared himself ready for profitability rises of just 4 per cent—not so bad, experts say, given the state of the aircraft market.

Ivo Dawnya

Belgium

Sifting the options

THE OUTLOOK for Belgium's aerospace industry can best be summed up with a number of questions: which option will the Government choose when the time comes to replace the Air Force's F16s? Where will the Army turn to find its new military helicopters? And how will Belgium participate in the next stage of the Airbus programme—the building of the A330 and the A340—compare with its current arrangements?

Since Belgium is too small to justify production of its own designs, its principal aerospace role has been as sub-contractor to other countries' projects. That inevitably leads to uncertainty—not least given that Belgium has seldom been able to grab an adequate share of a programme's development phase—but the problem is compounded at the moment by severe restraint on public spending and an unstable government with other distractions on its mind.

The most important work for local companies such as Sabca, Sonac and FN Motoren comes from the BFR 50bn contract signed in 1983 to buy a further 44 F16s made by General Dynamics of the US. The "offset" arrangements—i.e. subcontract work placed by General Dynamics with companies in Belgium—are worth 58 per cent of the purchase price in direct supplies for the aircraft plus a further 22 per cent of "indirect" orders (roughly EFr 10bn) between now and 1993.

Mr Hermann Candries, general manager of the Flemish Aerospace consortium FLAG (a grouping of more than 127 companies involved with the indus-

try) is particularly enthusiastic about the benefits of this part of the deal. "We think this will help a lot of projects get off the ground and once up they will keep on running even when the General Dynamics money order runs out."

The well-publicised rivalry between the new European Fighter Aircraft (EFA)—a consortium of Britain, Germany, Italy and Spain—and the French Rafale project spearheaded by Dassault inevitably has fuelled speculation about Belgium's involvement in the next generation of fighter aircraft. Discussions have been held with both camps but there is as yet little indication which way the wind is blowing.

Staying with the Americans at General Dynamics is another option, of course, but the chances are that Belgium's present administration headed by Mr Wilfried Martens will have long since gone before a final choice of partners and the extent of Government funding have been decided.

Last month's new capital injection for Sonac, the Charleroi company which is Belgium's leading contractor for the Airbus programme, leads some people to believe that government funds are more likely to be available for this civil project. Belgium is an "associate member" of the Airbus consortium through BelAirbus, a company whose major shareholders are Sonac, the central Government and the Walloon Regional Executive.

Flanders companies in the form of Asco and Watineeuw between them have 52 per cent of the Belgian work, which

essentially is concentrated on the aircraft's wings and associated electronic systems. ADM, another FLAG member, has a contract with British Aerospace for production of the wing-tip navigation lights while Barco Industries, a company which has recently obtained a listing on the Belgian Bourse, is one of several suppliers on a purely "free market" basis.

The question now is whether Belgian companies can increase their participation beyond avionics and the airframe when production starts on the A330 and A340. The Government is keen to encourage a more substantial role but no doubt the financial realities ultimately will determine the outcome.

Three other issues are significant for Belgium: the Government's commitment to the European Space Programme in which local companies have scored some notable successes; the decision on replacing Belgium's 46 Aerospatiale Alouette 2 and 3 helicopters where the choice, according to one local observer, appears to be between the French company and MBB of West Germany; and commercial interest in the Squalus civil and military trainer aircraft being developed by a joint Belgo-Italian company Promavia.

The Walloon region has invested much capital and faith in the Squalus project and the first flight in April was pronounced an outstanding success. Embarrassingly, however, it is an open secret that the Belgian Air Force at the moment favours another design.

Tim Dickson

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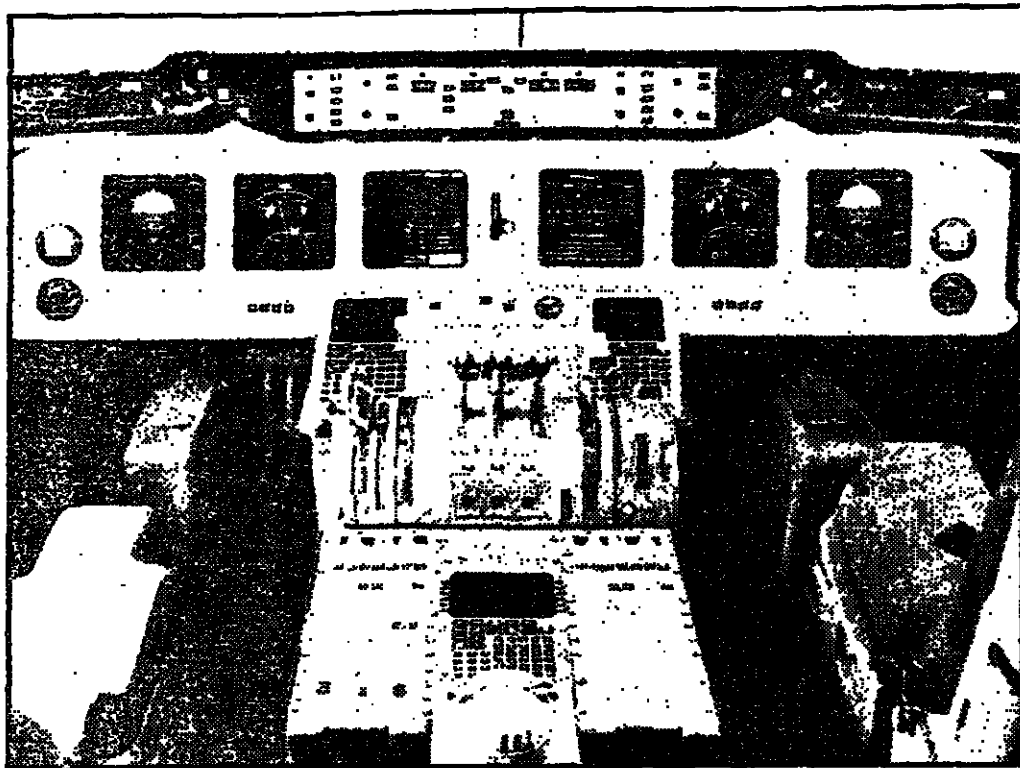
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AEROSPACE 14



Advanced cockpit layout under development for the McDonnell Douglas MD-11 wide-cabin tri-jet features six cathode ray tube displays for operational, navigation, engine and systems data.

Avionics

Electronic systems bring revolution

ABOUT A third of the cost of a civil airliner is accounted for by the airborne electronic equipment—the avionics—on board. In the case of the military sector, the proportion of cost attributable to avionics is much higher and is likely to rise as more aircraft operating functions are taken over by electronic systems.

The changes brought about in aircraft design, both civil and military, and aircraft operations through the increasing use of electronic systems are little short of revolutionary.

Civil airliners such as the new 150-seat European Airbus A320 and the still to be completed McDonnell Douglas MD-

11 tri-jet, use computer-generated colour graphics on cockpit visual display units. These provide the flight crew with all the information previously displayed on banks of dials and gauges, so baffling to the untrained eye and a strain even for qualified pilots.

The developments in electronic systems have made it possible for aircraft designers to produce aircraft that are safer, easier and more economical to fly and which take much of the strain off the flight crew.

The changes have gone much further than the automatic pilot equipment fitted to aircraft for many years and which provided pilots with the most substantial

change in their working practices since the earliest aircraft. The new cockpit layouts on civil and military aircraft are one of the more obvious changes in avionics equipment. Less obvious are the developments which affect the way aircraft fly. In particular, the use of so-called "fly-by-wire" techniques are expected to have a major impact on aircraft safety and efficiency as well as relieving pilots of much of the routine pressure of flying.

"Fly-by-wire" techniques involve on-board computers which operate as an additional "brain," receiving information from sensors around the flying surfaces of the aircraft and pro-

cessing the information from these in relation to the flight requirements and wishes of the pilots.

On the new A320 Airbus airliner, the traditional joystick controller has been replaced by side-stick controls, which are simple and light to use and more akin to the control sticks of domestic computer games than control units for an airliner.

The pilot uses these side-sticks to communicate with the computer. He or she, and there are an increasing number of women pilots of civil airliners, especially in the US and in Europe in British Airways, decides on a particular manoeuvre. This could be a gentle turn after take-off, or a change in course at cruising altitude. This instruction goes to the flying controls surfaces, via the computer. But the computer is also processing its own information coming by "wire" from the sensors. This information gives the current status of the aircraft, its trim and attitude. The information is processed by the computer in relation to a software computer program which defines the "flight rules" for the aircraft, the limits beyond which the aircraft should not fly.

The computer compares the pilot's instructions with the flight rules and their relation to the information coming from the sensors.

The aircraft could be making an extremely tight turn to the right, when the pilot demands, through his control stick, a sudden, rapid, perhaps emergency, turn immediately to the left. This could put an enormous, possibly catastrophic strain on the airframe causing the aircraft to crash.

The computer will sift the pilot's request and, through the flight rules, determine whether it is safe to comply with the request. If it is not safe to do so, the computer will not allow the control surfaces to make a turn to the left of the suddenness demanded by the pilot. The aircraft will probably turn more gently to the left.

This is one extreme example of how the "fly-by-wire" electronic computer based flight system can help the pilot. The pilot is free to use his control stick as he chooses.

A dangerous mistake cannot be made, as can happen with old technology aircraft built and designed on traditional design principles, where the pilot's skill and manual dexterity are the main controlling factors.

The fly-by-wire concept also has benefits for increased fuel economy, since the flight rules computer software program can be written to optimise fuel consumption.

Lynton McLain

Japan

Potential for collaboration

IS AEROSPACE the next industrial sector in which Japan will try to become internationally competitive?

That question has tormented Western aerospace industry officials for years. They look at the success of Japanese makers of cars, motorcycles, television sets and many other products in Western markets and wonder if the same will happen in aerospace.

However, it now looks like the wrong question. Many analysts would say that the Japanese aerospace industry is already competitive in many sectors, both in technological and commercial terms. It is on the verge of self-sufficiency, for example, in building satellites and the large rockets needed to launch them.

However, the prospects for an independent Japanese aerospace industry are severely limited. The domestic commercial aviation market is small, compared with the cost of product development in this sector, and foreign suppliers are well entrenched.

The military market is restricted by the political opposition to any significant increase in defence spending, and the near sacred prohibition on exports of military equipment. And, at the moment, more than 80 per cent of the industry's business is military.

There is, however, a lot of potential for the industry in

international collaborations, and many analysts expect that it is now on the verge of a period of major growth and technological advancement.

According to the society of Japanese aerospace companies, Japan's aircraft production and repairs will amount to an estimated ¥633.8bn (£27bn) in the current fiscal year to March 31 1988, up 4.8 per cent over last year. They hope annual sales will exceed ¥2,000bn by the end of the century.

Also, the quality of the Japanese contribution to collaborations is increasing rapidly. The companies are no longer just manufacturing under licence, they are also participating in the design and development of new products. Among the main projects under way are:

• The Patriot surface to air missile is about to be produced for Japan's Self Defence Agency (JDA) by Mitsubishi Heavy Industries (MHI) under licence from the US Navy.

• The JDA has ordered 200 XT-4 trainer fighters from Kawasaki Heavy Industries (KHI).

• A joint venture of MHI, KHI and Fuji Heavy Industries (FHI), is in a joint venture with Boeing to design and build a new 150-seat commercial jetliner, the YXC.

• Seven Japanese, US and European engine makers will begin full scale production this autumn of the jointly developed

V2500 jet engine. It will be used initially in the Airbus Industrie A-320 commercial aircraft.

For all the potential in these projects, the most important aerospace question in Japan these days is undoubtedly the fate of the so-called FSX project. This is the JDA's plan for replacing its 77 obsolete F-1 fighter aircraft. The programme would involve the construction of more than 100 aircraft at a cost of up to ¥1,000bn.

Until recently, it would have been taken for granted that the new fighters would be purchased from US manufacturers or manufactured under licence from them in Japan. However, Japanese defence contractors have mounted a vigorous campaign to win the contract to design and develop a new aircraft on their own.

Given Japan's huge trade surplus with the US, the issue has become highly sensitive, with several US administration and congressional spokesmen demanding that Japan buy American. The Japanese government is due to make a decision this summer, and it looks as if the FSX project, involving a US manufacturer, either General Dynamics or McDonnell Douglas, and the Japanese companies, with the Japanese in the lead, is still alive.

The European Group, Panavia, has also made a proposal, basically offering a total trans-

fer of technology to Japan, but it seems to have only an outside chance of gaining acceptance.

The Japanese aerospace industry is obviously confident that it will win big orders in the future, because it has been building new capacity at a high rate. MHI, the industry leader, has just completed building a ¥10bn plant in the Nagoya area for making Patriot missiles, and plans further expansion for space equipment.

KHI, one of the partners in the V2500 engine project, has just completed a ¥2.1bn engine plant and plans to build a ¥1.5bn assembly line for XT-4 trainers. FHI intends to build a seaside plant for making large aircraft body components.

Meanwhile, the country is about to become self-sufficient in satellites and the rockets to launch them. In the past year, it has launched rockets with 500kg payloads, although they use some US technology. Now, it is developing one, the H2, that will send up 2,000kg payloads, starting in 1992.

The National Space Development Agency (NASDA) wants to get into the commercial satellite launching business. It is confident that its costs will be competitive and is already in discussions with potential customers.

Ian Rodger

China

Being equipped by the west

THE Chinese Communist Party is presently under the influence of conservatives, emphasising the importance of "self reliance." But, much to their frustration, China's civil aviation industry will be carried into the next century by foreign suppliers.

An unusually evocative cartoon in the official China Daily recently gave an insight into the Chinese view of the foreign rush to sell the equipment that is needed to build a modern aircraft.

Three aircraft, respectively labelled "Airbus," "Boeing" and "McDonnell Douglas," were shown elbowing each other out of the way in an attempt to land on a Chinese airfield.

After a US\$2.5bn aircraft buying spree during 1985 and in the first half of last year, the Civil Aviation Administration of China (CAAC) has slowed its purchases. CAAC's director-general, Mr Hu Yizhou, who has a reputation as a reform-minded minister but still wears a Mao suit, made clear during a rare interview that fewer purchases would be made this year because many aircraft already ordered have yet to be delivered.

The CAAC has received much publicity in the past two years for a plan to divide itself into six autonomous branches and allow the establishment of regional airlines, in an apparent attempt to promote competition and improve efficiency. In theory, the regional airlines have the authority to order aircraft for their own use.

But, Mr Hu says, the competition is "quite different in nature" from that in the West, as the Chinese airlines complement each other under the jurisdiction of the aviation administration, which still has the major say in equipment purchases. "The travelling demand can't be satisfied at the moment. This is a unique situation in the world. In America some airlines go broke because of competition. CAAC will not go broke."

Boeing has had the best of the market, although, as with all imports, China is keen to have a mix of suppliers so that it will not be dependent on any one company. Since the early 1970s, Boeing has sold about 54 aircraft to the company, which estimates that, in dollar terms, it has had a 70 per cent share of the market.

McDonnell Douglas has sold five MD182s and has 23 more on the way under a co-operation agreement. A government spokesman said that the assembly of the aircraft in Shanghai. The first MD-82 produced under the agreement, which was signed 10 years after co-operation was first discussed in 1975, is due to be delivered in July to Shanghai branch of the CAAC in the north.

The company is presently discussing with the aviation administration the possibility of producing an additional 150 medium-range aircraft, with capacity of 150 to 180 passengers. If nothing else, the McDonnell Douglas Shanghai agreement shows that China now

wants the manufacturing companies to do more than just sell aircraft.

Under the agreement, the company will provide, among other things, an FAA certifiable pilot training and simulator facility by the end of this year, and must manufacture and trade to assist China to reduce the foreign exchange cost by up to 30 per cent.

With much of its immediate needs met, the administration has asked major aircraft and engine manufacturers to submit proposals to satisfy demand in the 1990s. McDonnell Douglas has estimated that China will need up to 200 more medium-sized passenger aircraft by the end of the century, and is confident that the Shanghai project combined with China's desire to localise production will work in its favour.

Mr Li Anping, deputy director of the civil aircraft department of the Aviation Ministry, has explained that China wants to produce a 150-passenger aircraft in the 1990s, and suggested that up to 100 would be needed to meet domestic demand. Mr Li also revealed that China will no longer import aircraft for agricultural purposes and will rely on modified versions of its existing fleet.

His statement was a reflection of China's foreign exchange shortage, which has led to strict controls on many categories of imports in the past year. The shortage has also made Soviet aircraft more attractive than they otherwise might be, and

China has contracted to purchase 17 TU-154s under a basket trade package.

British Aerospace has established a manufacturing presence by signing a contract last November for the assembly of BAe advanced turbo-prop (ATP) aircraft engines at the Shenyang Aircraft Corporation. The US\$750,000 contract is an attempt to capitalise on the market opening gained in 1985, when BAe sold 10 of its BAe 146 four-engine regional airliners. China has also purchased five A-310 airliners from Airbus Industrie, and Short Brothers of Belfast has been given an order for eight of the Shorts 360 small commuter and feeder aircraft.

Praet and Whitney have been the leading engine suppliers, while General Electric have provided a few and Rolls-Royce will supply RB-211 engines for three Boeing 767 aircraft ordered in February this year by the Guangzhou (Canton) branch of the CAAC for delivery in September and October.

China has successfully spread its aircraft suppliers in the past two years, and kept pressure on the major manufacturers, who have been willing to offer better than average deals to get a foot in the so-called "open door." While further spot purchases are likely in the next two or three years, industry observers expect that the next big Chinese commitment will be a joint production agreement that is more than an assembly line.

Robert Thomson

Australia

Debate on open skies policy

BY THE standards of most developed countries, Australia's aviation and aerospace industry is hardly glamorous. But there is no shortage of activity.

Over the past few months a series of major issues has come before the Labor Government of Prime Minister Bob Hawke:

• Deregulation of the domestic airline system. A government response is awaited to the May commission report on Australia's unpopular two-airline policy, which restricts operations on domestic trunk routes to the two major carriers, Ansett and Australian Airlines. Both are highly profitable.

The commission offered four choices for change, each a more progressive form of deregulation up to a complete "open skies" policy. But it refrained from making its own recommendation.

Sir Peter Abeles, the head of Ansett, quickly reacted to the proposals by saying there were only two options for the Government—maintaining the current system or complete deregulation.

According to Sir Peter, complete deregulation and competition would be feasible only if Australian Airlines, Ansett's principal competitor, was privatised—something the commission was not able to consider.

He also says Qantas and other international airlines should be prevented from expanding operations on Australian domestic routes. Currently they carry only international travellers.

Though many agree with Sir Peter, others fear that, without a government-owned competitor, Ansett would have an unbeatable advantage because of the extra industrial muscle conferred by the associated travel and transport operations of its owners, the powerful TNT and Mr Rupert Murdoch's News Group.

According to the small East-West airlines, which is challen-

ging the validity of the two-airline policy in the courts, real competition could be assured only if regulations were changed concerning airport access, the importation of aircraft and fare pricing.

Submissions have been made on the report by all sectors of the aviation industry, and the Government is now busy preparing a policy statement for release this month.

But change may not come quickly. Three years' notice is supposed to be given of an end to the two-airline policy. This means a continuation of the present system until 1990—unless East-West wins its court case.

At some stage the issue of privatisation of Australian airlines seems bound to arise. Early hints of such a plan aroused criticism in April, when the Government was busy casting round for possible savings ahead of its expenditure statement last month.

It was in this statement that the Government announced the sell-off of its eight international terminals. Sale of the domestic terminals was also considered, but the change of ownership ahead of any deregulation might have influenced the all-important matter of airport access for prospective competitors.

The chances of Qantas being privatised seem even more remote without a change of government, despite the worldwide trend of airline flotations. Indeed, the increasingly noticeable difference in attitude and philosophy between Australia and other countries over this sort of issue lies behind the simmering row with the US over aviation rights which boiled over last month.

At government-level talks in Canberra, Australia suddenly

renounced its capacity agreement with the US, prompting Washington to hint at retaliation as well as to talk of a crisis in bilateral aviation relations.

The break was provoked by a request from Continental Airlines to increase the frequency of its flights to Australia and its plan to switch some of those services from DC-10s to bigger 747 Jumbos.

Australia said Continental's moves were not supported by demand. It criticised the airline for picking up traffic in third countries and accused it of "dumping." The US pointed to the memorandum agreed in 1986 which provided for objections to increases in capacity to be discussed after trial periods of six months.

Without a resolution of the problem, both sides have to fall back on the principal bilateral agreement, which remains intact but is seen as vague and unsatisfactory.

As for Australia's fledgling aerospace industry, this is seeking support from the government on a number of fronts. One of the most important concerns participation as a partner in projects with the world's major aerospace companies.

The projects include the new Airbus A-320 and A-340 and the Boeing 777. Such collaborative possibilities spring from the government's official policy and the foreign companies' desire to reduce risk. Hitherto Australian companies have mostly had a sub-contractor role.

The problem is the overall economic climate of Australia. Australia. Only last month the Government announced the proposed sale of the Government Aircraft Factory in Victoria.

Chris Sherwell

THE SKIES OF ASIA ARE WAITING FOR YOU

Changi International Exhibition Centre, the new and permanent home for Asian Aerospace, has taken shape with the structural framework in position and the roofing and cladding will be added very soon.

Matching this fast progress is the level of sales. Already 80% of the 12,000 sq. m. of indoor display area has been contracted or is held against written reservation.

The largest space of 3000 sq. m. is for USA companies exhibiting with the Department of Commerce followed by UK, West Germany and France. Other national pavilions are for Canada, Australia, New Zealand, Japan, Italy, Sweden and Israel. International consortia such as Airbus Industrie and Panavia are also exhibiting.

The area for companies based in Singapore has been expanded twice and is now 900 sq. m. in size. Several companies from other regional countries have also taken space.

The Airfreight section of the exhibition hall has been welcomed by airlines, forwarders and equipment manufacturers and industry leader Federal Express has contracted space. Other sectors of the industry, such as space and satellites, have also attracted their share of exhibitors.

Conferences are being organised by the Financial Times, Asian Aviation, Payload Asia, Space Markets and Airport Support magazines and the Association of Singapore Licensed Aircraft Engineers. A defence related conference is also being considered.

24 chalets in two rows have been taken and reservations for aircraft in the static and flying displays already indicate that Asian Aerospace 88 will be an exciting forum for all sectors of the aerospace industry in this dynamic region.

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AEROSPACE 15



Skyship over London. Pleasure flights and aerial advertising are the prime civil uses for the new European airships. They also make effective high-level TV camera platforms for major events.

Airships

Progress as more uses are explored

THE AIRSHIP, or lighter-than-air craft, has made a considerable comeback in recent years, due largely to the vigorous efforts made in this field by a small UK-based but Australian-controlled organisation, Airship Industries.

That company's most significant competitor in the Western world is Goodyear of the US, which has specialised for many years in the development of small lighter-than-air craft (which it calls "blimps") for the US armed forces.

AI is an associate company of

Bond Corporation Holdings of Perth, Australia. The first of its range of powered, steerable airships, the six-passenger Skyship 500, made its maiden flight in September 1981, and a stretched derivative, the 12-14 passenger Skyship 600, first flew in March 1984.

These two types of airship are intended to satisfy requirements in the civil, military and paramilitary fields. The prime civil applications are for aerial advertising and promotion and pleasure flight operations, while defence applications

involve primarily surveillance-related activities. In the defence field, the airship is especially suitable for airborne early warning, anti-submarine warfare, electronic warfare and mine counter-measures activities.

Airship Industries, or "AI", now has 10 craft flying, five Skyship 500s and five Skyship 600s, with two more of the latter under construction. One of the Skyship 600s, operated by AI earlier this year was the subject of a £6m 12-months leasing deal with a major Japanese advertis-

ing agency, for use in night-time advertising.

That craft will use an AI-developed on-board system of generating pixels or light-emitting diodes, capable of a range of 1,000 colour shades and a change rate of 25 frames per second, effectively creating huge television screens.

The pictures will be generated through a computer system which will accept VHS video tapes, live TV camera pictures or a keyboard caption generator for up-to-the-minute messages.

AI is satisfied that with this system it has created a means of greatly enhancing the airship's already impressive advertising abilities.

Other roles for the airships include TV platforms for major sporting and other events (an Airship Industries craft covered last year's Americas Cup yacht races in Perth, Australia, for world TV), and the occasional tourist sight-seeing ventures including a recent series of flights over London.

But for the longer term, the company has also conducted extensive studies into the potential use of large airships, and is now involved in conjunction with Westinghouse Defence Systems of the US, in a major battle with Goodyear of the US Navy for airships for use with the fleet at sea for detection of enemy supersonic sea-skimming missiles, under what is called the US Naval Airship Programme, or NASP.

The US Navy has turned to airships because they are cheap to buy and fly in comparison with fixed-wing or rotary-winged aircraft; they are also stable in all but the fiercest weather, and can remain airborne for extensive periods without needing to return to shore bases to refuel.

The US Navy wants enough airships to be able to keep several permanently airborne to give adequate protection to the fleet at all times while at sea, and it has been talking in terms of an eventual order worth some \$2bn, although the initial contract would be smaller.

In the joint Westinghouse-Airship Industries venture, a big airship called Sentinel 5000 is being proposed, in competition with Goodyear's major new craft, GZ-22.

The Sentinel 5000 would be one of the biggest airships built, with an overall length of 410 feet and a hull diameter of 102.5 feet, and using 1.6m cubic feet of helium, powered by two diesel engines for cruising and one turbo-propeller engine for fast operations.

Its gondola, slung under the hull, would have two decks: one carrying the avionics equipment for the airborne early warning system (to be built by Westinghouse) and the other for crew quarters.

The US Navy's decision was originally expected earlier this year, but has been delayed for financial reasons and for further examination of the rival proposals. But Airship Industries is expecting that a decision will come some time this summer.

If the joint Westinghouse-Airship Industries venture does win the US Navy competition, it will do more than just give AI a lot of work for years to come.

It will effectively confirm the validity of the whole concept of airships for a wide range of roles, which AI has been fighting for since its foundation, and finally lay to rest the attitude that has prevailed for many years that airships as a type of aircraft are inherently unsafe or in some other way unsuitable as workhorses of the air.

As a result, AI can foresee a major breakthrough into the commercial market for airships following inevitably in the wake of such a major US Navy order.

Michael Donne

Space efforts

Confidence dented in West

The west's satellite launches			
	Launcher	Payload(s)	Success or failure
Jan 86	Shuttle (US)	RCA Satcom	S
Jan 86	Shuttle (US)	Air Force satellite	F
Feb 86	Atlas Centaur (US)	Air Force satellite	S
Feb 86	Ariane (Europe)	French remote-sensing satellite	S
March 86	Ariane (Europe)	Satellites for Brazil and GTE	S
April 86	Titan (US)	Air Force satellite	F
May 86	Delta (US)	Weather satellite	F
May 86	Ariane (Europe)	Intelsat satellite	F
Sept 86	Delta (US)	Star Wars payload	S
Sept 86	Atlas Centaur (US)	Weather satellite	S
Nov 86	Scout (US)	Science satellites	S
Dec 86	Atlas Centaur (US)	Navy satellite	S
Feb 87	Titan (US)	Military satellite	S
Feb 87	Delta (US)	Weather satellite	S
March 87	Delta (US)	Satellite for Indonesia	S
March 87	Atlas (US)	Navy satellite	F

sion until a spell of severe weather had passed.

The other four failures—starting with the Challenger space shuttle explosion in January last year and continuing with mishaps involving the US's Titan and Delta rockets and Western Europe's Ariane launcher—were all connected with technical problems associated with the launch vehicle itself.

The West's launcher problems have caused a spate of satellite groundings and accident inquiries, as a result of which the launch programmes in Western Europe and the US have slowed to a snail's pace. The Soviet Union meanwhile, has been forging ahead.

In 1986, when US managed just six successful launches (five involving expendable rockets and one Shuttle mission) the Soviet Union was responsible for no fewer than 91 rocket launches. These put into space a range of satellites for jobs such as communications and weather monitoring and for military operations such as surveillance or early warning of nuclear strikes.

This year, the USSR appears to have suffered a setback, with two failures of its Proton launchers, according to reports in the West. But the country has not let these events interfere with its launch programme, which quickly returned to schedule after the latest mishap.

During last year, the Ariane rocket, developed by the European Space Agency and now sold by Arianespace, a commercial organisation based in France, made two successful launches. The European Space Agency is a 13-nation consortium which co-ordinates Western Europe's space projects.

Japan and China, the world's other two main space powers, each managed two launches during 1986.

From the West's point of view, it is difficult to see events turning for the better in the near future. The US's Space Shuttle fleet, comprising the three vehicles that remain after the Challenger's loss, are unlikely to fly again until summer next year at the earliest.

After the Ariane mishap in May last year, further flights of the rocket have been stopped so that lengthy modifications to the vehicle's third-stage motor can be made. The next mission is expected some time this summer.

A number of US communications companies, including Western Union and GTE, are suffering from the launch delays by the fact that satellites which they had expected to be seeing service in orbit are instead still stored in warehouses, awaiting flights. The difficulties have led to a depression in the space industry as a whole.

The one bright spot has been confidence expressed by two US companies, McDonnell Douglas and Martin Marietta, that they will be able to make a success out of offering launch services involving the Delta and Titan rockets to commercial customers. Launch operations for these rockets, hitherto conducted by Nasa and the US Air Force respectively, have been passed to the commercial sector in a novel example of privatisation.

Both McDonnell Douglas and Martin Marietta say they have orders for their vehicles from a number of organisations, including Comsat and American Satellite Company (two US communications companies) and Intelsat and Inmarsat, which are international consortiums operating satellites for ground telecommunications and ship-to-shore messages respectively.

Both companies, which expect to start their launch activities around the end of 1988, will be heavily dependent, however, on orders from the US Government for the launch of military payloads.

While the space activities of Western Europe and the US have been in disarray, such has been the confidence of the Soviet Union that it has offered use of its space facilities to the West. The offer is to launch commercial satellites on the country's tried-and-tested Proton rockets and the Soviets have even suggested renting out equipment on board Mir to westerners.

The equipment could include furnaces and other systems in which new materials such as novel semiconductors could be produced under the low gravity and vacuum of outer space.

So far, these invitations have met largely a cool response. However, among one set of people, the West's scientific community, the offers of co-operation have been well received. Scientists from West Germany, the Netherlands and Britain are involved with astronomy experiments now taking place aboard Mir. Such collaborative links involving the Soviet Union and Western groups could well be a foretaste of what is to come, particularly if the West's mainstream space activities continue to be dogged by problems.

Of these programmes, the biggest scheme on the drawing boards is a plan by the US and its international partners—Western Europe, Canada and Japan—to build a permanently-manned space station by the mid-1990s. Planning for this, however, has been going far from smoothly.

The base, with room for about eight people, would have a variety of roles, including acting as a servicing centre for satellites, as a laboratory for materials processing and as a platform for Earth observation.

After three years of discussions, the various countries are still some way from agreeing on the format for proceeding with the venture which, according to estimates, could cost about \$20bn by the end of the century. A major problem has been an insistence by the US Defence Department that it wants a say in running the station, something that the other countries have resisted.

Until the difficulties are resolved, the shape of programmes organised by the European Space Agency is unlikely to be clarified. Among the ESA projects scheduled for the next decade are the construction of the Columbus orbiting laboratory, which is due to plug in to the central US core of the West's space station, and the development of a heavy-duty Ariane rocket.

Peter Marsh



An artist's concept of a possible supersonic business jet aircraft, as envisaged by British Aerospace. Such an aircraft would carry 12 passengers over distances of up to 3,600 nautical miles, at speeds close to twice that of sound (Mach 1.85).

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AEROSPACE 16

Airports

Increasing pressures for expansion

THE STEADY EXPANSION of air transport throughout the world, is generating considerable pressures, not only on the airlines themselves but also on the entire ground infrastructure of the commercial aviation industry.

As a result, there is now hardly an airport anywhere in the world that is not undergoing modernisation, expansion or refurbishment to cope with the rising tide of passengers and cargo, and plans for many new ones are either being laid or commissioned.

It is estimated by the International Civil Aviation Organisation, the technical agency of the UN, that the average annual growth in world scheduled air passenger traffic is likely to be between five and seven per cent in the years immediately ahead.

Last year alone, scheduled domestic and international air traffic rose by six per cent to reach some 950m passengers, and if the less easily quantifiable charter and non-scheduled traffic is included, it seems likely that well over 1bn passengers flew somewhere in the world during 1986.

Extrapolating the ICAO growth estimate through to the mid-to-late 1990s, it seems likely that by the end of this century, throughout the world, including the Soviet Union and China, there will be some 1.5bn air passengers a year, counting both scheduled and non-scheduled activities.

Not only will these require aircraft to travel in—leading to outlays of some \$222bn on new aircraft both to meet the growth and to replace existing ageing fleets, and resulting in the growth of the total world airliner fleet from the current level of about 7,000 jet airliners of all kinds to about 9,500—but they will also require both new and enlarged airports to handle them on the ground.

As a result, it has been estimated that worldwide between now and the end of this century, the direct outlays on airport and associated developments on the ground (such as all types of equipment to facilitate handling) will amount to about \$90bn.

Although this figure may appear to be large, it may even-

tually prove to be even conservative. An individual airport can cost upwards of \$500m, especially when constructed on a greenfield site, and there already are some very ambitious projects under way or planned, such as that for the new Kansai airport on reclaimed land in the sea in Osaka Bay, which is likely to cost upwards of \$5bn, while plans for a major new airport for Hong Kong on Lantau Island have been recently resuscitated and that project may yet come to fruition.

In Singapore, some \$554m (Singapore) will be spent on the expansion of Changi International Airport.

When such sums are taken into account, the \$90bn does not seem so large, and there are many in the world air transport industry who believe that it will eventually prove to be low.

In any event, the figure covers only the period up to the end of the century, and since it is recognised that air transport is likely to continue its expansion well into the next century, substantial further sums will need to be spent beyond that figure.

The factor behind this expansion is simply that air transport is now regarded as a major contributor to any nation's economic growth in its own right. This is especially the case in the UK, where civil aviation contributes annually more than £250m to the nation's balance of payments, and provides direct employment to over 100,000 people, and to many thousands more indirectly.

The seven airports owned and run by BAA plc, formerly the British Airports Authority (which is due to be privatised this summer, the world's first State-owned airports organisation anywhere to be transferred to the private sector), and which includes the biggest international airport in the world, Heathrow, collectively provide employment for some 72,000 people. Of these, BAA plc itself accounts for nine per cent, with the rest employed by airlines, agents, concessionaires and Government organisations such as Immigration and Customs and Excise.

BAA plc itself, following its outlay of more than £200m on the new Terminal Four at

Heathrow (raising that airport's total capacity from 30m to more than 38m passengers a year) will be spending about another £680m between now and the early 1990s on other major programmes. Few people doubt that further substantial sums will need to be spent before the century is out, possibly for example on a second runway at Stansted in Essex or a new Terminal Five at Heathrow, or both.

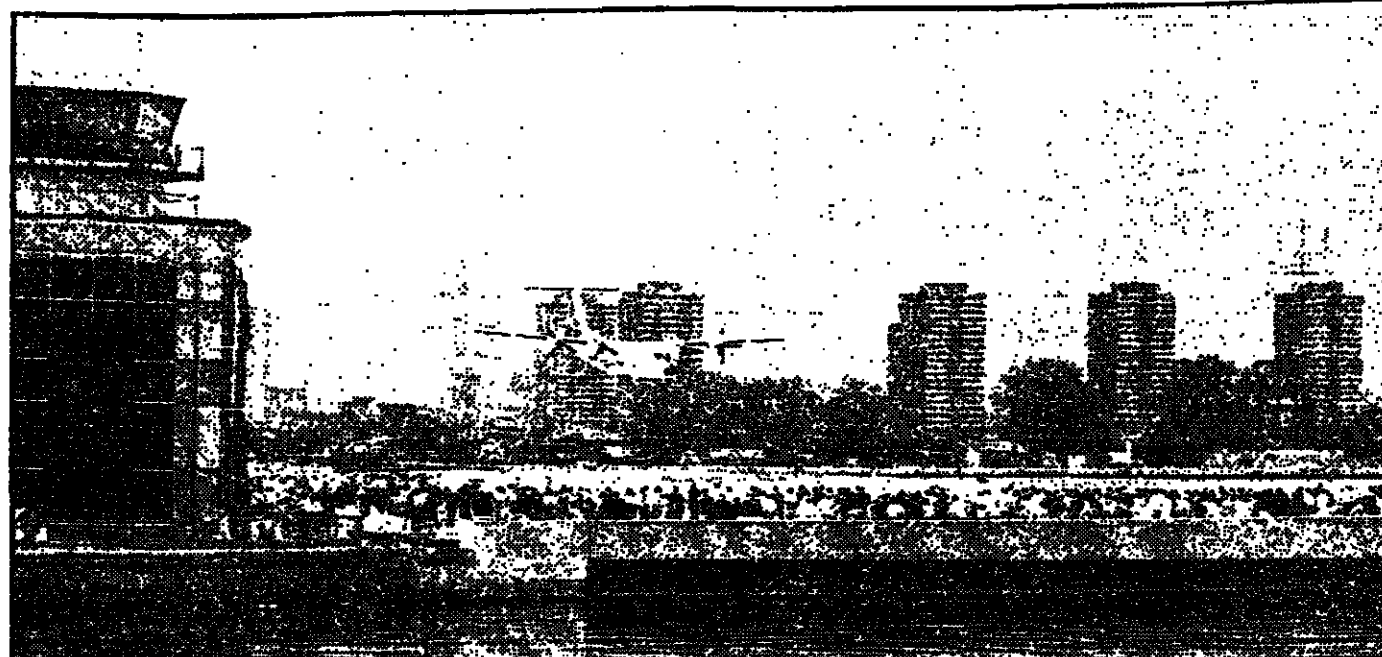
BAA plc's activities include some £30m on refurbishing Terminal Three at Heathrow, to become operational in 1989; some £200m on the new North Terminal at Gatwick, to become operational next year, raising that airport's total capacity from 16m to 25m passengers a year; and some £290m at Stansted in Essex to raise its capacity to some 8m passengers a year, with provision for further growth to 15m. At Glasgow £110m is being spent on refurbishment and expansion, to equip it for the growth in Scottish air traffic in the years ahead.

Also in the UK, a major new development is the City of London Stipport (short take-off and landing airport) that is being built as a private venture by John Mowlem, the construction engineers, in London's Docklands, close to London's business and financial centre, and due to come into operational use later this year.

Two airlines, Brymon Airways and Eurocity Express (part of the British Midland group) have already been licensed by the Civil Aviation Authority to operate competitive air services between the Stipport and such Continental destinations as Amsterdam, Brussels and Paris, starting this autumn.

The Stipport is expected to take some of the strain off Heathrow and become a major asset for business travellers seeking swift transport to and from the City of London itself.

The expansion that is going on throughout the rest of the world covers virtually every country, ranging from simple improvements such as installing improved radar and instrument landing aids through to the construction of new runways and terminal buildings and even building entirely new airports.



The new £26m London City Stipport (Short Take-Off and Landing airport) now under construction in the Docklands area east of the City, becomes fully operational in October. Already, however, trial flights into and out of the airport have been undertaken to familiarise crews and ground staff with the airport, and to alleviate local residents' fears of aircraft noise disturbance.

In Western Europe alone, major airport improvement programmes are under way or planned at Brussels, Charles de Gaulle (Paris) with a third passenger terminal due to open in 1987, Athens, Rome, Milan, Amsterdam, Oslo, Barcelona, Stockholm, Geneva and Vienna, to name but a few—and there are many others.

Elsewhere, in the Far East, a major airport construction programme is being planned for China, including a reported new building programme of up to 300 airports to bring that country's air transport network up to par with those of Western countries.

In Africa, major new programmes are under way or planned in many countries, including Botswana, the Central African Republic, Guinea, Kenya, Nigeria, Sierra Leone, Tanzania and Zambia. Other major developments are under way in South America.

Developments in the Middle East include a new airport at Al Ain in Abu Dhabi, due to open next year, and continuation of work on the King Faud Airport in the Eastern Province of Saudi Arabia to become operational by 1990.

These represent only a few of the scores of projects, large and small, now under way worldwide, but they serve to indicate how widespread the airport expansion programme is.

While much of the glamour and prestige of commercial aviation attaches to the passenger side of the system, cargo is not forgotten, for there, too, a massive expansion of 5 to 6 per cent a year through to the end of the century is forecast, and

much money and effort is now being paid to improving access to airports. Although recognised as vital in some of the more advanced nations, little attention has been paid to this in many countries. As traffic continues to expand, pressures for improved road and rail links between city centres and airports are also growing.

For what all those millions of passengers will require in the years ahead will be smooth, comfortable, convenient and safe transfers between airports and city centres.

Speed in the air can soon be vitiated by congestion and delays on the ground, and even in those cities where much attention has been devoted in the past to such elements of the system, for example in London itself, considerable further attention is now being paid to methods of further improving access to such airports as Heathrow and Stansted, in the remaining years of this century.

Although not included in the \$90bn mentioned above, a substantial amount of additional cash, running into billions of dollars, will need to be spent on, or earmarked for, new road and rail access systems to airports, to speed the future flows of passengers.

Michael Donne

Continued from page 1

Collaboration to spread costs

the overall UHB concept is added to the other advanced technologies, as it is expected to be in the forthcoming Boeing 777 twin-engine "prop-fan" powered 150-seater airliner, the result seems likely to be a very formidable aircraft indeed.

Other versions of "prop-fan" types of UHB-engined airliners may include a smaller, 100-110 seater, the McDonnell Douglas MD-91X, for service about 1991, and perhaps a larger 150-seater MD-92X, for service a little later.

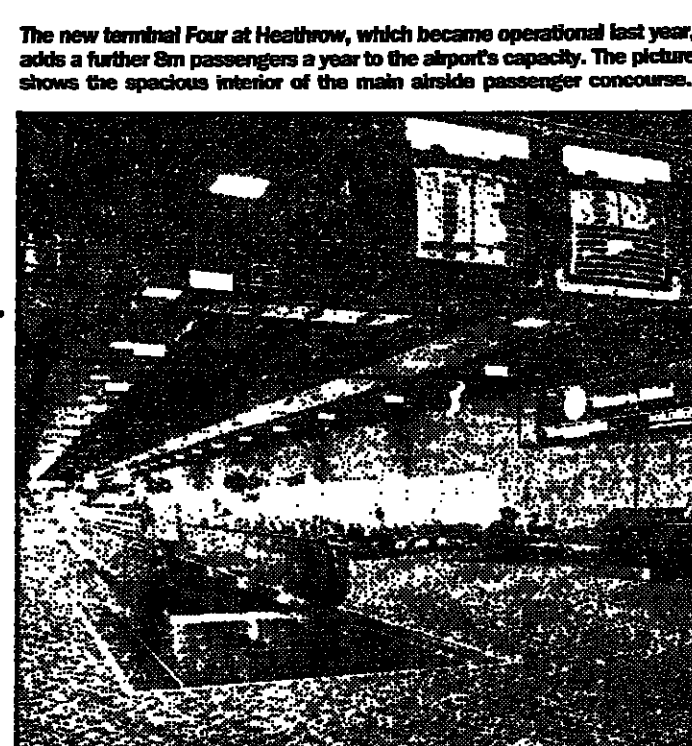
But all the major engine manufacturers are either studying or even starting preliminary development work on other versions of these ultra high by-pass engines, covering every sector of the range/payload spectrum.

For although the concept itself is well understood, there are various methods of exploiting it and the resulting engines could reveal significant technological variations in shapes, sizes and such fundamental matters as whether they are better with or without gearboxes.

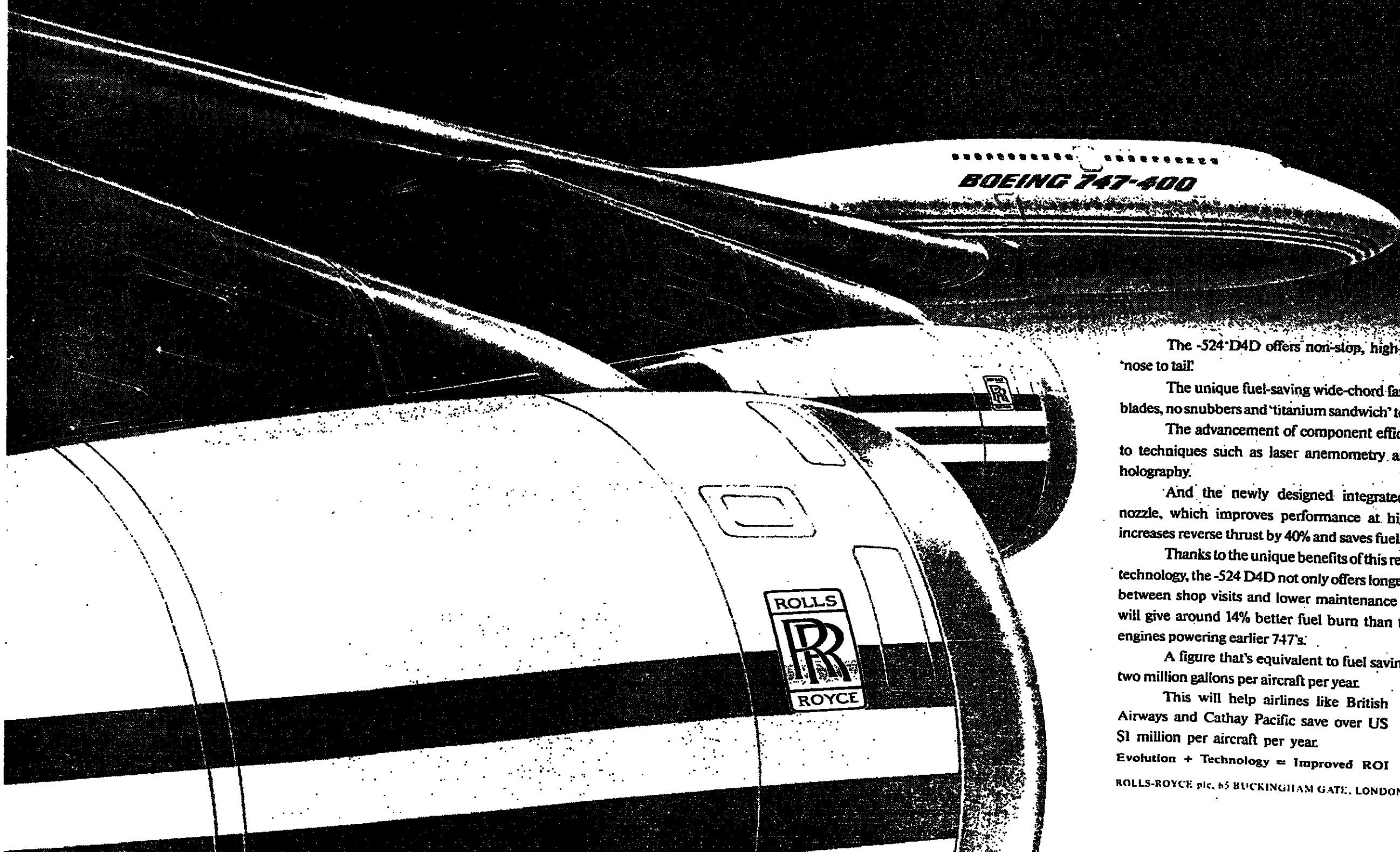
Where there is no basic disagreement, however, is that UHB powerplants will eventually emerge, although there are some deep differences over the time-scale of their introduction into service, with some believing they are likely in the early 1990s and others looking more towards the end of that decade for reliable engines.

The most anxiously-awaited decision in the commercial aviation market at this time, however, has nothing to do with engines, but as to when the new generation of Airbus airliners—the short- to medium-range high-density A-330 and the four-engine ultra long-range A-340—will be formally launched. Much detailed design work on these new ventures has been done already by Airbus and its shareholding companies in the UK, West Germany, France and Spain, and a substantial number of "launch customers" have been provisionally won.

After some delays, the UK and French Governments have now agreed to support the development of these new aircraft financially, and a West German Government decision, at time of writing, is believed to be imminent. If all goes well, a formal launch commitment may well be taken, and announced, during the Paris Air Show itself.



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